A Clinical Lecture

ON

SEVEN CASES OF PERFORATED GASTRIC ULCER TREATED BY OPERATION, WITH THREE RECOVERIES.[1]

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BY ARTHUR E. BARKER, F.R.C.S. ENG.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AND PROFESSOR OF CLINICAL SURGERY AT UNIVERSITY COLLEGE, AND SURGEON TO UNIVERSITY COLLEGE HOSPITAL.

GENTLEMEN,—Among the most recent advances in abdominal surgery none is more interesting or more likely to yield good fruit than the operative treatment of perforating gastric ulcer. This hitherto terribly fatal accident is now shown to be well within the reach of surgery if taken in hand promptly. And there seems to be good reason to hope that as time goes on our achievements may be crowned by a success which as yet we can hardly estimate. For just as in the case of other intra-abdominal lesions the study *in vivo* by the operator has cleared up many pathological and clinical questions impossible of solution by those who only had an opportunity of examining regions and tissues after death, so may it be in the case of gastric ulcer. Much light is almost certain to be thrown upon its anatomy, pathology, and clinical history by this "*autopsy in vivo*." And this is as likely to prove of service to the physician in his endeavour to arrest the progress of gastric ulcer as it will be to the surgeon who has to deal with the latter when it has perforated. It is almost impossible to gauge the influence which the study of the next few score of operations for perforated gastric ulcer may have upon the knowledge and treatment of stomach disease. And here physicians and surgeons are more than ever dependent on one another for mutual help. What we want now, it appears to me, is a careful detailed record of the cases operated on and of the impressions produced by the various procedures adopted on the minds of the operators themselves. I propose, therefore, now to record my three successful cases in detail and to refer very briefly to the only four other unsuccessful cases in which I have operated for this condition. Three of these are referred to generally in a lecture published some time ago, but a short allusion to them here with one since operated on will make the present a complete record of all my operative experience up to the present in this particular field of gastric surgery. Finally, I propose to give my impressions upon some interesting points which must occur to all who deal with these cases. For the following abstract of the voluminous notes of Case 2 I am indebted to my late house surgeon, Mr. J. H. Cook, to whose untiring attention and intelligent care much of the success of our interference must be attributed. The other cases, taken in the order of their occurrence so as to avoid repetition, I have myself abstracted. It may be stated at once that before, during, and after the operation they received the same general treatment. The patients' bodies were in every case wrapped in warm wool from head to foot to avoid chill and all means were adopted to avoid prolonging the operation unnecessarily. All delay, too, in commencing the latter was avoided in every way possible.

CASE 1.—A young woman aged twenty years was admitted into University College Hospital on Dec. 19th, 1895. She had been a hard-worked housemaid for the last six years. For a year past she had been typically anæmic, with irregular menstruation, constipation, pain in epigastrium and mid-dorsal region, also retching, anorexia, drowsiness, "hollow cough," and shortness of breath. There had been no hæmatemesis or headache. On Dec. 19th the patient had breakfast at 8 A.M., consisting of bread-and-butter, tea, and an egg. After this there was some pain, but not enough to prevent her going about her housework. At 11.40 A.M. while going down stairs empty-handed she coughed sharply and thereupon was seized with severe gastric pain followed by fainting and a semi-comatose condition, which lasted until her admission. At 12.30 P.M. the patient vomited, and again at 2 P.M. A hypodermic injection of morphia was given and hot poultices were applied. She was admitted into the hospital at 8 P.M. At this time there was not much shock. The pulse was 120 and the temperature in the rectum was 103·2° F. Her breathing was shallow (30). The abdomen was not distended, but was slightly prominent below. The respiratory movements were limited to the upper part. The abdominal wall was rigid and tympanitic all over including the liver area. It was less resonant in the right flank and splenic dulness was present. The diagnosis being clear, the operation was performed at once—eight and a half hours after perforation. A median incision five and a half inches long was made above the umbilicus, and another from the middle of this through the left rectus transversely. A great escape of gas and turbid fluid followed, with a return of the liver dulness at once. When the stomach was handled severe vomiting set in, requiring both hands to keep the organ within the abdomen. The perforation was found in the anterior wall high up to the left near the lesser curvature. It measured one-third of an inch across. Its edges were much indurated, but there were no adhesions round it. It gave exit to green fluid. The abdomen throughout contained a large quantity of thin yellowish fluid, most abundant in the left flank and pelvis, less in the right flank, and a little in the right groin. A few flakes of lymph were seen. All this was removed by sponges passed into the various regions with the hand. This sponging occupied twenty-six minutes, and was most carefully carried out between the liver and diaphragm on either side of the falx and on the under surface of the liver round the spleen. Then the opening in the stomach was closed with seven fine silk sutures taking up about half-an-inch of the stomach wall on either side and placed about a quarter of an inch apart. The row of stitches was vertical. After a final sponging on the same lines a piece of omentum was laid over the line of sutures in the stomach, and the abdominal wound was partially closed by interrupted silk sutures, only enough being left open to hold three strips of iodoform gauze, one running down to the lesion in the stomach and one to the liver border on the right and left. But before closing the wound a puncture was made in the abdominal wall below the ribs on the left side and a seven-inch drain-tube was inserted so as to lie between the liver and the diaphragm. The operation lasted one hour and twenty-five minutes. The after-treatment was practically the same as in Case 2. There was but moderate shock, and when this was overcome convalescence was uninterrupted.

CASE 2.—This is of special interest as illustrating the possible difficulties which may arise in the diagnosis of a condition usually regarded as presenting an obvious and unmistakeable clinical picture. The patient was an unmarried parlourmaid aged twenty-four years. She came from Norfolk, and had always been regarded as a typically robust country girl, well nourished, and of fresh colour. She remembered no previous illness, and her family history was good. She had never had any symptoms pointing to disorder of the stomach, except occasional trifling dyspepsia. Six years ago she noticed a right inguinal hernia, followed in a few months by one on the left. On June 12th, 1896, I saw her at 9.30 P.M. apparently quite well. At 10.30, contrary to her usual custom, she took off her truss before getting into bed feeling quite well. Thereupon the hernia came down on the right side, but she pushed it back herself. On turning over in bed shortly after she was seized with violent pain in the right inguinal region so severe that she roused the household with her cries. I examined her an hour later and there was no abdominal distension and no symptom of collapse. The pulse was about 80 and the temperature 99·8° F. There was no sickness and the colour was good. Both inguinal rings were empty. There was no clear indication as to the cause of the pain, but appendical colic was suspected. A hot stimulant was given and a hypodermic injection of morphia, and the abdomen was covered with a belladonna fomentation. Early next morning, the pain still persisting and the temperature having risen to over 100° and the pulse also to over 100, the patient was sent to the University College Hospital. On admission it was noted that there was no abdominal distension, nor had there been any vomiting or even inclination thereto, but the temperature had risen to 101·8°. The colour was still good and there was no collapse. The pulse was 134 and of low tension with occasional intermission. There was no dulness in the flanks but great

[1] The original number of cases on which this lecture was based was five. Since it was sent to THE LANCET I have operated on two more and have incorporated them here to save separate record.

tenderness on palpation, especially in the inguinal regions. The rings were clear, but there was fluid now in the right inguinal sac which could be reduced. The patient lay supine with the legs straight out. She had passed no flatus or motion since the onset. Vaginal and rectal examination was negative. Under observation during the forenoon the temperature gradually rose to 102·2° and the pain increased. It was therefore decided to operate without delay. This was done eighteen hours after the onset of the attack, the provisional diagnosis being either reduction *en masse* or appendicitis. In view of the provisional diagnosis an incision four inches long was made through the right rectus muscle parallel to, and half an inch internal to, the linea semilunaris and ending about one inch above the inguinal ring. After opening the abdomen a quantity of turbid fluid like thin custard, alkaline in reaction, welled up from the pelvis. The omentum close to the ring was chronically thickened as by the pressure of a truss. Both rings were found to be empty as well as the other apertures. The right hernial sac was full of the fluid referred to. The vermiform appendix was normal. There were no signs of strangulation anywhere and no particularly distended coils of intestine. The pelvic organs, which were bathed in the fluid named, were examined and found healthy. There was some recent lymph on the small intestines, which were slightly injected. After the pelvis had been dried out a sponge was thrust on a holder upwards towards the liver on the right side, when a gush of gas and fluid revealed the nature of the case. On percussion the liver dulness was found to be obliterated. This part of the operation had lasted nearly an hour. The inguinal incision was now covered with a flat sponge, and a second five-inch median incision above the umbilicus was immediately made. The right upper quadrant of the abdomen was now found to be quite full of the same fluid already described, which was dammed back from the left side by a screen of great omentum. After sponging out this fluid in large amount a small perforation the size of a crow-quill was found at the right end of the stomach in the anterior wall close to the pylorus. Its edges were clean cut and soft. The peritoneum between the upper surface of the liver and the diaphragm was coated with lymph, and was cleansed by a flat sponge passed many times between the two structures on both sides of the falciform ligament with the hand. The perforation was then closed by a double row of 6 × 2 silk stitches by Lembert's method for quite three-quarters of an inch on each side. Before this was done, however, the stomach had been emptied as completely as possible through the perforation by pressure with the hands. The peritoneum was now sponged finally all over, special care being given to the subphrenic spaces, the flanks and the pelvis, where any residuum of fluid would have collected. Then the upper incision was partially closed by stout silk sutures, leaving room for four thick strands of iodoform gauze for drainage. Two of these passed upwards, one on each side, between the border of the liver and diaphragm, one dipped down behind the gall-bladder and one to the line of suture in the stomach. The latter was finally covered by a fold of omentum. Then the inguinal incision was completely closed by deep silver and superficial silk sutures. A salicylic wool dressing all over the abdomen completed the operation, which had lasted nearly two hours. At the close of the operation the patient was extremely collapsed; there was no perceptible pulse at the left wrist; at the right it could just be felt, beating 144. In three hours, however, matters had improved. Feeding by the rectum was begun at once, nutrient suppositories and enemata of peptonised milk alternating every four hours with small hot water enemata. There was still no vomiting until next morning, when some perfectly undigested broad beans and their pods were brought up twice. The temperature at this time was 100°. Food by the mouth was given from the first—two drachms of a mixture of the white of an egg beaten up with two ounces of warm water and half an ounce of brandy every two hours. From this time the pulse improved greatly. On the fourth day the patient vomited four times, bringing up a mixture of undigested beans and asparagus to the amount of five ounces in twenty-four hours. On this day the gauze drains were partially loosened. On the fifth day the rectum rebelled against the nutrient enemata. The egg mixture was therefore increased to three drachms every two hours, and one drachm of brandy in six drachms of soda-water besides frequently. One of the gauze drains was removed on this day with some difficulty and pain. On the sixth day the white of an egg mixture was increased to one ounce every two hours. A small stitch abscess was now found in the lower part of the upper incision: it was quite superficial. Alternating with the other food half an ounce of milk was now given every two hours. On the seventh day the remaining strands of iodoform gauze were drawn out of the abdomen. The yelk of the egg was now added to the mixture and one ounce of the latter was allowed every two hours. Also one ounce of chicken broth alternating with this every two hours. A pint enema of hot water opened the bowels to-day (the seventh) for the first time. On the eighth day the egg mixture was doubled and alternated with Benger's food, beef tea or chicken broth. Suppositories of peptonised meat were given as before. The ninth day saw the complete healing of the lower wound and the removal of the stitches. On the tenth day the egg mixture was increased to three ounces every two hours; once a day one drachm of Brand's essence of meat was given, and chicken broth as before. The stitches were removed from the upper incision, which was now syringed out and lightly dressed with iodoform gauze, the edges being brought together with American rubber plaster. Once a day the patient was from now given half an ounce of juice scraped from lightly cooked fresh meat. Feeding was continued during the day as before every four hours, but not at night. On the twelfth day a cup of weak tea was added to the other food. On the sixteenth day the patient had an attack of follicular tonsillitis, which soon passed off. The diet was varied with several kinds of jelly. Soon after this the patient was allowed pounded chicken and then gradually returned to a normal light diet. By July 27th the wounds were soundly healed and the patient was practically well. She did not, however, leave the hospital until the end of August, and then only for the Convalescent Home at Eastbourne. When she returned to service on Oct. 1st she looked quite well, and said she was getting stronger daily. Since then the lower wound has been rubbed by her truss and has discharged a little, but this has not interfered with her duties. The latter are made light, and she is constantly under observation in the house of the medical man in whose service she is.[2]

CASE 3.—A woman aged twenty-seven years, a housemaid, was admitted into University College Hospital on Nov. 2nd, 1896. She had only been a short time in service with the medical man in whose house the perforation took place, so that her previous habits were imperfectly known. She had come from Scotland a few weeks before, a strong, well-built girl, but very anæmic, very dyspeptic for several years, and with very bad teeth. She had never had hæmatemesis. The bowels were habitually confined. On Nov. 2nd she went to her room to dress at 11 A.M. when a fellow servant hearing an unusual noise looked into her room and saw her fallen back on her bed pale, motionless, and apparently dead. The medical man, on being immediately fetched upstairs, found her pulseless and in deep collapse. Restoratives were administered and she revived. She was then sent to University College Hospital. On admission it was noted that she lay on the back with the legs extended complaining of severe pain in the epigastrium somewhat to the left of the middle line. Respirations were shallow and frequent. The pulse was from 80 to 90, full and compressible. The abdomen was not distended; movement was almost gone except above. There was epigastric tenderness, but no general tenderness; the wall was hard; and there was an absence of liver dulness. The temperature before operation was 102·2° F. in the rectum. At 6.30 P.M., seven and a half hours after perforation, I operated precisely as in Case 1, finding gas and abundant effusion throughout the whole abdomen, but most on the left. This was dealt with by sponging, as in all the other cases, the transverse incision through the left rectus giving free access to the left side especially. There was a little difficulty in cleansing the right sub-phrenic space. The manipulation of the stomach had a bad effect on the breathing for a few seconds. The perforation lay near the lesser curvature at the cardiac end of the stomach. It was oval, half an inch by a quarter of an inch in dimensions, sharp-cut, with very little induration around; there was no lymph about it. The opening was closed by two rows of silk stitches, the first nine and the second eight. The greater

[2] The patient remained well and in active service up to Nov. 15th, 1896, when she felt pain in the abdomen and vomited a little blood. The next day she looked ill and was sent to the hospital, and while there had a severe attack of abdominal pain and some sickness with a temperature of 102°. She is now (Dec. 1st, 1896) well apparently but still in bed.

part of the abdominal wound was closed by deep silk sutures, three strips of iodoform gauze being inserted for drainage. One of these ran to the stomach suture, another to the border of the right lobe of the liver, and a third passed down behind the gall-bladder. The operation lasted one hour and twenty-three minutes. The patient bore the operation well and was soon comfortable. Next morning the temperature was 100°, the pulse 96, and the respirations 30; there had been some retching. Rectal feeding was resorted to, as in the other cases, with small quantities of albumen, water, and brandy by the mouth from the first. For the first week there was steady improvement, the temperature falling steadily to below 100° and the pulse to from 76 to 86. On the seventh day she looked bright and well, had passed flatus, and ceased retching. At 1 P.M. I removed the gauze drains, which were bathed in a small quantity of pus. At 3 P.M. the temperature was 99·4°. At 5.30 P.M. it rose suddenly to 102·8° and she felt ill. At 8 P.M. the temperature was 104°, at 9 P.M. 102·8°, and at 11 P.M. 100·8°. From this time onwards it fluctuated between 103° and 99·8° for ten days, during which I carefully drained the tracks from which I had removed the strands of iodoform gauze. These tracks were soon almost dry, but still the fever remained at night and the respirations corresponded. At the end of the second week there was well-marked fine crepitation or friction over the side and base of the left lung with deficient resonance on percussion and absence of vocal fremitus as high as the fourth rib in the nipple line. Some of my colleagues referred this to dry pleuritic rub; to me it was rather more like a fine bubbling crepitation. On the eighteenth day I felt that there must be some matter in the sub-phrenic space; and at 10 P.M. I punctured with an aspirator needle in the eighth space in the posterior axillary line, and at a depth of two inches from the skin surface reached pus and drew off thirteen ounces of thin, pale fluid, quite sweet, and not blood-stained. This gave relief and lowered the temperature. It also caused total and immediate disappearance of the fine crepitation previously heard. The next morning the patient was better, and I thought it well to resect one and a half inches of the ninth rib opposite my puncture, stitch the phrenic and parietal pleura together, and puncture again. But though I did this in various directions I found no matter. The wound was packed with iodoform gauze. The patient remained much better for the next couple of days, and on the twenty-second day I punctured again opposite the proximal end of the excised rib and at a distance of half an inch from the rib reached pus. A narrow-bladed knife was thrust along the needle and the opening was enlarged and with forceps I inserted a drain tube which slid in some three inches. About five ounces of odourless pus were thus evacuated containing white clots of lymph. I confess I am uncertain as to whether this was a sub-phrenic collection or a localised empyema lying under the base of the lung upon the diaphragm. It certainly was reached at no more than half an inch from the outer surface of the ninth rib. Nor do I know any way of settling the difficulty. On removing the first thirteen ounces of pus the fine crepitation completely disappeared, which seems to me to negative a parietal friction rub and to favour the view I personally held from the first, that it was a fine mucous crepitation in compressed lung. This sound, however, reappeared the next morning over a diminished area and not so loud. The patient's present condition (thirtieth day) is as follows. She takes nourishment well by the mouth; the bowels act without enemata; the abdomen is painless, and the wound in the abdomen is clean and closing steadily; the pulse is from 90 to 104, the respiration about 20, and the temperature from 100·6° at night to 99·2° in the day; the rib wound is draining well; the patient is feeling well and is cheerful; and although it is too soon to pronounce her out of danger I think I am justified in calling this so far a successful case in adding it to my previous list.

CASE 4.—A woman aged twenty-three years, a housemaid, was seized with severe epigastric pain after breakfast on Dec. 1st, 1895. She was able to do her morning's work, however, and did not go to bed until about noon. She was treated with morphia and hot fomentations. When I saw her for the first time at noon the next day the symptoms of perforation of the stomach were obvious. There was collapse; the pulse was 110 and the temperature 102° F.; the respiration was shallow, and there was distension and great tenderness. The operation was performed at 4.30 P.M., some thirty-two hours after the perforation. A median incision was made above the umbilicus; there was a great escape of gas and fluid which contained food. The abdomen was cleansed as in the other cases, except that the hand was not carried between the liver and diaphragm as was done in all the other cases. A perforation of the size of a goose quill was found to the left of the middle of the anterior wall. This was closed by a double row of sutures, and the wound was treated as in other cases. The patient bore the operation without particular shock, and was soon doing very well until the third day, when the temperature had fallen to normal. There was no vomiting and the tenderness soon disappeared. After this the temperature gradually rose, but everything else was satisfactory, the bowels resuming their functions. About the tenth day I felt almost sure there was a subphrenic abscess on the left side and went to the bedside prepared to explore it. I could not, however, make up my mind to do so. The temperature from this time rose to 106° and the patient died on the fifteenth day.

Necropsy.—Post mortem the abdomen was found in a very satisfactory state except above the left lobe of the liver, where there was a large subphrenic abscess and commencing basal pleurisy. Had the abscess been opened the result would probably have been good from all appearances. It was clearly limited and shut off from the rest of the abdomen.

CASE 5.—A woman aged twenty-three years, a housemaid, was admitted to University College Hospital on Jan. 10th, 1896. She was a vigorous-looking woman and had been very energetic in her work. She had suffered from epigastric pain after food for some years. There had been no vomiting or hæmatemesis before this attack. At 2 P.M. on the 9th she had been attacked with severe epigastric pain, which gradually spread over all the abdomen. There was repeated vomiting, but no hæmatemesis. On admission on the 10th, at 5 P.M., she was found to be pale, ill, and collapsed. The pulse was 160, small, and thready; the respiration was 60, and chiefly thoracic. The abdomen was extremely distended and rigid and resonant everywhere, even over the liver and as high as the fourth space. There was slight dulness in the right side. The operation took place at 6.15 P.M., twenty-eight hours after the rupture. A median incision was made from the ensiform to the umbilicus, followed by a great escape of gas and yellow turbid fluid containing fragments of the last abundant meal, with return of the liver dulness and improvement of pulse. The stomach was strongly adherent by recent lymph to the parts around, and a firm, old, fibrous band, an inch long and as thick as a goose-quill, united it with the abdominal wall. This had to be divided in order to bring the perforation into view. This lay about the middle of the anterior wall of the stomach just below the edge of the left lobe of the liver. It was surrounded by much old half-organised and recent lymph and the wall of the stomach around was hard and gristly. The organ was now emptied by gentle pressure, green fluid escaping by the perforation. This manipulation had a very bad effect upon the pulse and respirations. The lymph having been wiped away thoroughly from around the perforation the latter was closed as in the other cases with a double row of silk sutures. Then the same elaborate mopping with sponges introduced everywhere by hand was done and a drain opening was made in the left flank for a tube passing between the liver and the diaphragm. The closure of the wound over iodoform gauze strips was effected in the same way as in the other cases. The operation lasted sixty-five minutes, during which time the patient's condition was very critical. She only lived four hours, never having properly rallied.

CASE 6.—This patient, a housemaid aged seventeen years, was admitted to University College Hospital on Feb. 29th, 1896. Her history showed indigestion for six months, with pain a quarter of an hour after meals, which had become much worse during the last week. There was constipation, but no vomiting or hæmatemesis at any time. On the 28th she experienced severe pain in the abdomen half an hour after breakfast, but not enough to prevent her undertaking the ordinary housework. At 1 P.M. the patient ate a heavier dinner than usual, and at 1.30 P.M. she had very severe pain in the abdomen, necessitating her taking to bed up to her admission to hospital at midnight. The patient subsequently vomited several times on trying to take food, and had been very much collapsed. The last steol had been on the 25th after an aperient, and a slight motion came away on the 28th after repeated enemata. On admission she was found to be a well-nourished girl.

She was in a state of collapse. The pulse was 90, the temperature, taken in the rectum, was 99° F., and the respirations were quick and shallow. The abdomen was generally distended and tender. There was no dulness anywhere, even over the liver. The respiration was almost entirely thoracic. The operation was performed at 1.30 A.M. on Feb. 29th, twelve hours after rupture (? seventeen hours). An incision from the ensiform cartilage to the umbilicus was made, which was followed by a gush of gas and two pints of fluid, containing potatoes and greens, with a return of the liver dulness. A transverse incision was then made from the middle of the first incision through the left rectus muscle. A perforation measuring half an inch by one-third of an inch was found in the anterior wall near the lesser curve. The contents of the stomach were squeezed out of the perforation until it became empty. The abdominal cavity was cleansed methodically with hand and sponge as in the last case. The aperture in the stomach was similarly closed by six silk sutures. The final treatment was as in the previous case. The operation lasted about an hour and a quarter. There was much shock, from which the patient hardly recovered, and she died within twelve hours.

Necropsy.—On post-mortem examination septic peritonitis was found generally, with collections of semi-purulent fluid. The line of suture in the stomach was watertight. The mucous membrane of the stomach was healthy except at the edges of the ulcer, which were turned in.

CASE 7.—A young woman aged twenty years, a housemaid, was admitted to the University College Hospital on Oct. 25th, 1896. For the last year she had suffered from dyspepsia, but otherwise she enjoyed good health. At 5 30 P.M., whilst alone in the house, she had been seized with sudden pain in the abdomen and was found in a collapsed condition. Dr. Ringer, who lived close by, was called, and at once diagnosed perforated gastric ulcer. There were collapse, general abdominal pain, and epigastric tenderness. She had had a full meal of beef and cabbage at 1.30 P.M. On admission at 7 30 P.M. there were still collapse, hurried breathing, and great abdominal pain. Pallor was marked and the surface was cold. The pulse was 108 and the temperature 100·6° F. The abdomen was somewhat distended; the liver dulness was gone in front, but remained behind. There was some loss of resonance in both flanks. The tenderness was limited to the upper part of the abdomen. At 9 P.M.—i.e., three and a half hours after perforation—I operated precisely as in Case 3 except that the left rectus was not divided transversely. The subperitoneal fat before opening was observed to be œdematous. When the abdomen was opened there was a great gush of gas, followed by opaque turbid fluid containing flakes of lymph and fragments of green cabbage and other food. This fluid was faintly alkaline. The whole abdomen had been infected and it was necessary to sponge every part of it from diaphragm to pelvis. The perforation in the stomach was circular and about a quarter of an inch across. It lay near the lesser curve to the left of the middle of the organ. Its edges were clean-cut and surrounded by an area of induration as large as a shilling. After squeezing the stomach empty the opening was closed by folding in its edges by a row of seven silk stitches reinforced by a second row of ten stitches. The general treatment of the abdomen was the same as in the other cases except that there was no lumbar drainage-tube. All the drainage was through the anterior wound and consisted of strips of iodoform gauze. The operation lasted one hour and twenty minutes. The pulse improved when the gas and fluid escaped; it deteriorated during the sponging and again improved when this was completed. There was comparatively little shock, which soon passed off, and the condition next morning was good, the temperature being 100·6°, the pulse 116, and the respirations 28. But from this time on the temperature and pulse rose through the day and following night and the patient died at 6 A.M. on Oct. 27th, thirty-six hours after the operation, with a temperature of 106·2°.

Necropsy.—The post-mortem examination showed general septic peritonitis, the only clean part of the abdomen being the area round the seat of incision drained by the iodoform gauze.

It will be first noticed in regard to these cases that they were all young female domestic servants. Further, it is remarkable that in five out of the seven cases they had only been for a short period in the situation in which the accident occurred. This suggests the possibility of previous privation (certainly present in one) followed by abundant supply of unwonted food having played a part in the causation of the ulcer. Extreme anæmia was marked in five of the cases and not in the others. It was conspicuously absent in Case 2, the patient looking typically healthy. As to the immediate exciting cause of the giving way of the ulcer, it is noted in three of the cases that a heavy meal had just been taken (Cases 5, 6, and 7), all of which were fatal. In the other four (Cases 1, 2, 3, and 4) the patients may be said to have been fasting. In Case 2 the rupture occurred long after a light meal at 10 P.M., when the patient was in bed and without the slightest premonitory sign. In Cases 1, 3, and 4 the perforation appears to have taken place early in the morning, some time after a light breakfast. It is further worth emphasising that of the four who had only had a light meal some time before three recovered and one lived fourteen days after operation. All of those who had had heavy meals shortly before died. Physical exertion does not appear to have caused the final perforation in any of these cases, but in Case 1 the latter may possibly have been produced by an attack of coughing. As to premonitory symptoms there were none at all in one case. In none was there hæmatemesis. Pain was present after food in four and sickness in two cases.

The condition of the patients at the beginning of the operation varied. In Case 2 there was no shock and the colour was very good, but the temperature was 102·2° and the pulse 136 and intermittent; the abdomen was not markedly distended. In Case 1 there was not much shock, the temperature was 103·2°, the pulse was 120, and the abdomen was not distended. The same was the case at the time of operation in Case 3 though the perforation produced shock. All of these recovered. In Case 4, too, in which the patient lived fifteen days, there was not much shock although the temperature was 102°, the pulse was 116, and the abdomen was somewhat distended thirty-two hours after perforation. In Case 6 there was much collapse, the temperature was 99°, the pulse was 140, and the abdomen was generally distended twelve hours after perforation. Extreme collapse was also present in Case 5, with the pulse 160 and the respiration 60, the abdomen being greatly distended all over twenty-eight hours after perforation. Both of these cases died soon after operation. The three cases which recovered were operated on respectively at eight and a half, eighteen, and seven and a half hours after the accident. The other four at thirty-two, twenty-eight, twelve, and seven hours after.

In all seven cases the perforation was on the anterior stomach wall; the largest was only half an inch across. There was no evidence in any of a second perforation. The duration of the several operations were:—In Case 1 one hour and twenty-five minutes (recovered), in Case 2 just two hours (recovered), in Case 3 one hour and twenty-three minutes (recovered), in Case 4 one hour and a quarter, in Case 5 one hour and five minutes, in Case 6 one hour and a quarter, and in Case 7 one hour and twenty minutes. The last four died.

In regard to the operations themselves they were carried out on the same lines except in Case 4. Everything was done as quickly as possible. A median incision was made in all; in three a transverse cut through the left rectus muscle was added to this, the perforation being difficult to reach. In one an inguinal incision had been previously made which probably facilitated the cleansing of the pelvis very materially. In cleansing the peritoneal cavity dry sponging was employed in all without flushing of any kind. In doing this particular care was observed to carry the hand and sponge between the liver and diaphragm in order to wipe away lymph, fluid, and food. In my first case (Case 4) this point was omitted, with the result of a left subphrenic abscess. Taught by this I was more careful in all the other cases and was surprised in each by the amount of matter which could lodge between the liver and diaphragm. Round and behind the gall-bladder also required special cleansing as well as the flanks and pelvis. There was no very special difficulty in carrying the hand into all these regions through the median incisions. After a large experience of flushing the abdomen I prefer dry sponging for this class of cases. A drainage-tube was inserted through a special hole in the flank in two cases, but in each appeared to do but little work, and I think now might have been dispensed with except in Case 3, where a subphrenic abscess formed and had to be opened between the ribs. The anterior wound was drained with strands of iodoform gauze in four cases and with the best results.

One strand reached deeply between the liver and diaphragm on each side, another to the suture in the stomach, and a fourth down behind the gall-bladder. They remained *in situ* until the fifth or sixth day, when there was always some difficulty in removing them. But I have been greatly impressed with their value; they drained well, and on removal the edges of the wound came together wonderfully. In Case 2 the scar has all the appearance of one healed by first intention, without the least bulging. *In no case was the ulcer cut out.* The edges were simply folded well in and the closing silk stitches were deeply inserted in one or two rows by means of round sewing needles.

In the after-treatment great reliance was placed on feeding by the mouth (see Case 2). Small repeated doses of egg albumen and water, of brandy, beef-tea, and chicken broth were begun as soon as the patient had recovered from the anæsthetic. But besides this peptonised suppositories were introduced into the rectum, alternating every two hours with five ounces of hot water.

From the experience gained in these cases I am inclined to think that the success or failure in their treatment depended in the first place upon the moment after perforation at which they were treated. In the next place the condition of the stomach contents which escaped among the intestines must have influenced the result. In Cases 2 and 3 the fluid found round the perforation was thin and without visible fragments of food; it was also slightly alkaline. The characters of the fluid in two other cases were the same to all appearance. One of these recovered and the other lived fifteen days. In the three remaining cases, where solid meals had been taken shortly before, large fragments of food (potatoes and greens) were present among the intestines and were producing much irritation, as evidenced by the presence of abundant lymph and dirty serum. Of course, this produced much more profound shock and great distension. Whether in these two cases the abdomen could have been better cleansed by flushing is, I think, a question easily answered. Very voluminous and prolonged flushing would probably have done more in carrying away débris of food than simple sponging with the hand. But in the state in which these patients reached the operating-table they would not have tolerated any prolonged operation. As it was, one died four hours after of shock where the operation only lasted sixty-five minutes. On the whole I have formed the impression that dry sponging, as employed in all these cases, is preferable to flushing. But then it must be carried out with method.

In the worst of these cases (Case 5) where there was terrible shock before the operation and in Case 6 the pulse and general condition improved greatly on the opening of the abdomen and the escape of the gas and fluid pent up under great pressure. This ought to encourage us to operate where collapse is present rather than wait on the chance of its subsidence. But it should also be noted that handling of the stomach produced violent vomiting which only ceased when the chloroform was pressed. It was necessary to evacuate the stomach by pressure in all cases and I venture to think this is better done with the hand through the perforation than by washing out, which is tedious. As to the after treatment in these cases the immediate feeding by the mouth appeared to be as beneficial as after other operations on the stomach. It is hard to imagine how this could be injurious at first while the stitches hold. And the benefit in rousing the patient from collapse is a justification for running some risk. I should feel more anxious about mouth feeding after two or three days than at first, for then the stitches might be cutting. Of course, food and plenty of fluid must also be given by the rectum at the same time. Finally, I have been careful in the two cases which recovered to keep the patients for a long period in bed under strict treatment for the gastric ulcer. For though the perforation may be soon soldered up after stitching there is good reason for believing that the gastric ulcer and the generally vicious condition of the digestion takes a long time to repair, as was evidenced in Case 2.

In the two cases referred to the patients are still under observation. Case 2 is seen daily and appears now, four months after the operation, to be in excellent health. She is in service again and doing her work cheerfully and well (*vide* footnote). Case 1 was also quite well and in service when I last heard of her. Through Dr. Coode Adams of Hampstead, to whose rapid diagnosis and prompt action in sending her at once to hospital, she owes her life as much as to the operation. Case 3 is still in hospital, going on well more than a month after operation.[3]

ON THE "SERO-DIAGNOSIS" OF TYPHOID FEVER.

BY SHERIDAN DELÉPINE, M.B., C.M. EDIN.,
PROCTER PROFESSOR OF PATHOLOGY AT OWENS COLLEGE, MANCHESTER

PART I.

WIDAL'S method for the rapid diagnosis of typhoid fever is beginning to be generally known. He has himself established his claims to the discovery of this new method of "sero-diagnosis," as he calls it, in an article published recently in THE LANCET.[1] Previously to that communication the only complete account of this method which had appeared in English journals was the one published in the *Medical Chronicle* of October.[2] In this paper an attempt has been made at tracing the discovery up to its origin and to review the share which Charrin and Roger,[3] Metchnikoff,[4] Pfeiffer,[5] Bordet,[6] Max Gruber,[7] and Durham[8] have had in the study of those properties of the blood serum of immunised animals so happily utilised by Widal. It should also be mentioned that Dr. Wyatt Johnston of Montreal had already in the month of September last made arrangements for the diagnosis of typhoid fever by this method. I think, however, that it might have been better for him to do what we have done in Manchester before using the method for public health work. Immediately after reading Dr. Widal's communication to the Paris Société Médicale des Hôpitaux[9] I spoke of it to Dr. Niven. I was, however, anxious not to use the method before I had had a sufficient personal experience of it, based on the examination of typical cases of typhoid fever and other fevers. Dr. Niven offered at once to give me all the help he could by obtaining blood and secretions from cases received at the Monsall Fever Hospital. Dr. Marsden, the resident medical officer at the hospital, showed himself very willing to give us all the assistance possible. Before the end of July we had already obtained results which could leave no doubt as to the value of the method. The number of cases recorded in France by Widal, Widal and Sicard, Achard, Courmont, and others had already at that time reached a sufficient size to inspire confidence.

Some simple experiments which I made at the beginning of this inquiry convinced me of the very close relations existing between the phenomena which have been described successively by Charrin, Roger, Metchnikoff, Bordet, Gruber and Durham, and others. As these may help the readers who have not paid special attention to this branch of bacteriology I will describe some of them briefly.

1. To 5 cubic centimetres of neutral peptone bouilion, 0·5, 1 and 2 cubic centimetres of the serum of an animal immunised against typhoid fever are added, then the tube is inoculated with typhoid bacilli, and incubated at a temperature of 37° C. A control tube of bouillon without serum is inoculated at the same time with the same quantity of typhoid bacilli and incubated in the same way. At the end

[3] While correcting these notes I have been called off to an eighth and ninth case and have just finished the operations. Here I had to do with males aged forty-six and twenty-four years respectively These cases will be duly recorded in a future paper. Dec. 1st: Case 8, operated on eight hours after perforation, has so far had no bad symptom, and now, a week later, appears to have every prospect of recovery. Case 9, operated on seventy-six and a half hours after onset, died the next day of collapse.

[1] Fernand Widal: On the Sero-Diagnosis of Typhoid Fever, THE LANCET, Nov. 14th, 1896, p. 1371.

[2] Sheridan Delépine: "Sero-Diagnostic" of Typhoid Fever, Medical Chronicle, Oct., 1896, New Series, vol. vi., pp. 60 to 70.

[3] Charrin and Roger: Comptes Rendus et Mémoires de la Société de Biologie, Nov. 25rd, 1889, p. 667.

[4] E. Metchnikoff: Annales de l'Institut Pasteur, 1891, tome v., p. 473; 1894, tome viii., pp. 714-716; 1895, tome ix., p. 433, &c.

[5] R. Pfeiffer: Zeitschrift für Hygiene, 1894, Band xviii., p. 1; 1895, Band xix., p. 194, &c. Pfeiffer und Koll: Zeitschrift für Hygiene, 1896, Band xxi., p. 203.

[6] J. Bordet: Annales de l'Institut Pasteur, 1895, tome ix., p. 462, and 1896, tome x., p. 191, &c.

[7] Max Gruber: Münchener Medicinische Wochenschrift, 1895, Band vi., p. 14. Wiener Klinische Wochenschrift, Feb 3.

[8] Gruber and Durham: Münchener Medicinische chenschrift, March, 1896. Durham: Royal Society, Jan. 3rd, 1 Journal of Pathology and Bacteriology, July, 1896, vol iv., p. 13.

[9] June 26th, 1896.

of ten hours the bouillon containing no serum will be evenly turbid from the growth of the bacillus. At the end of the same time the bouillon to which serum has been added will be clear or nearly clear, and the bacilli will be found to have formed a precipitate at the bottom of the tube, where they form a number of small clumps.

2. The same experiment is repeated, with this difference, that the blood of a patient suffering from typhoid fever at the end of the third week of the disease is added to the bouillon of one tube instead of the serum of an immunised animal. The results are the same, though in some cases the reaction is not quite so clear.

3. To ten, twenty, or fifty drops of a twenty-four hours old culture of typhoid bacillus in neutral bouillon (or to a similar quantity of an emulsion of the bacillus grown on gelatin) one drop of immunised serum is added, the bacilli become almost instantaneously motionless, or nearly so, and then become massed together in clumps of various sizes. If to similar quantities of the same cultures similar quantities of normal human serum be added the bacilli will continue to move about freely and will not form clumps.

4. The same experiment as No. 3 repeated with the blood or blood serum of a patient affected with typhoid fever will give the same reaction. In the first few days of this illness the reaction may not be observed, but as the disease advances the reaction becomes exceedingly clear. If one watches a preparation in which normal human blood has been added in any proportion to the bacilli these are seen to move actively about and do so with such power that the blood corpuscles move to and fro and are in a state of agitation. This might well be described as "a dance of the corpuscles." The bacilli, even though they may still be animated with some movement, after they have come in contact with the blood of a patient suffering from typhoid fever never produce this "dance" to any marked extent. If drops on which these phenomena have been observed are kept in a moist chamber for hours and days the reaction or absence of reaction remains quite evident. I have seen the clumping still distinct at the end of 144 hours. When they have not formed good clumps and have not been completely immobilised from the first, the bacilli for a time become more and more immobilised and form more and more distinct clumps. After a while, however, the process is often reversed and a few are seen to regain their motility. It seems also that the number of bacilli increases. Some of those forming the clumps seem to get longer and to multiply. The bacilli are not killed, they rather seem to be paralysed, and on watching the formation of clumps under the microscope it has seemed to me that the stoppage of the motion of the flagella has something to do with the formation of clumps. The bacilli in a clump are at first kept at a distance from each other, probably by the cilia, and then, for some reason which is not evident, they get more closely packed together. They, however, never look as if they were glued together by some agglutinating substance. In some cases they seem to become very granular, but in others their appearance does not alter much. For these reasons I think the phenomenon should be described by terms indicating simply that the bacilli form clumps; such terms as "glabrification" or "agglutination" should be avoided. The share taken by various observers in the discovery of the phenomenon makes it also invidious to associate the name of the reaction with the name of any one observer. It would be advantageous to use a name which would be clear to workers of various nationalities, and for that reason I think the term "agglomeration" is preferable to the shorter and otherwise more convenient word "clumping." Though I would prefer not to see the name of any writer attached to the reaction itself, I think it is well to recognise (1) that the method of diagnosis of a micro-organism by the changes occurring in the peritoneal cavity of an animal immunised against that microbe must be associated with the name of R. Pfeiffer; (2) that the discovery of the clumping phenomenon outside the body in the serum of immunised animals must be associated with the names of Charrin and Roger, Metchnikoff and Bordet; (3) that the utilisation of this method for the diagnosis of microbes must be associated with the names of Gruber and Durham, who have worked out the method with more care than previous observers; and (4) that the discovery of the method by means of which a case of typhoid fever can be diagnosed (before immunity has been established) by means of the reaction which the serum of such a patient will produce when brought in contact with a pure culture of typhoid bacilli must be associated with the name of Widal. The discovery of Widal consists in that, starting from a typical bacillus as a known quantity, he determined the nature of a doubtful case by the action which the serum of that case will have on the bacillus. All the previous observers used the serum of an immunised animal as their known quantity and considered that a high degree of immunity was an important element of diagnosis. It is true that the reaction was also proposed to test the potency of sera, but this was not proposed for the purpose of diagnosis of cases of typhoid fever.

There were many points which it seemed to me desirable to settle before using Widal's method on a large scale. Soon after the beginning of this investigation I was fortunate enough to obtain the friendly coöperation of Dr. E. J. Sidebotham, with whom I continued to make the observations to be recorded in my next communication. It will be unnecessary to describe here the plan of the investigation since the results obtained will sufficiently

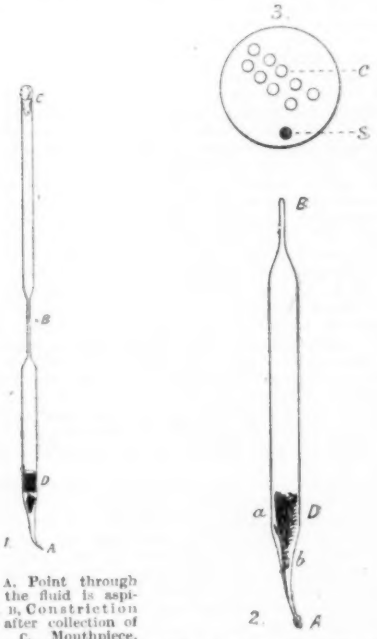


Fig. 1. A, Point through which the fluid is aspirated. B, Constriction sealed after collection of blood. C, Mouthpiece. D, Space generally occupied by the blood after collection when A and B are sealed.

Fig. 2. Small tube sent to the laboratory. D, *a*, clot. *b*, serum sometimes quite clear. B, Part to be heated after A has been opened.

Fig. 3. Appearance of a cover-glass on which the drops have been deposited before mixture—*c*, culture; *s*, serum.

indicate what was aimed at. I may say, however, that after trying various methods I came early to the conclusion that to obtain comparative results it was advantageous to proceed as follows. The finger of the patient is thoroughly cleaned and, if time permits, the skin carefully disinfected. A prick is made in the usual way with a sharp lancet-shaped needle so as to obtain two or three large drops of blood. The patients show no objection whatever to this procedure. This blood is at once aspirated in a modified Pasteur's pipette the point of which has been kept sealed till then and is broken and sterilised just before use.[10] The point of the pipette is then sealed again. The constricted portion is drawn out in a flame and sealed. This small sealed tube is taken to the laboratory. The point through which the blood has been aspirated is sterilised, broken, and a little of the fluid blown out by heating slowly

[10] It is important to allow the pipette to cool before the blood is drawn into it. It is also important in sealing the pipette not to heat the blood. This can be easily avoided.

the other sealed end of the tube; the small drop of fluid is received on a sterilised slide. The tube is sealed again for further observation if necessary. Some drops of a twenty-four or at most forty-eight hours old culture of typhoid bacillus in neutral peptone bouillon are then poured into a watch-glass or on a slide (sterilised). With a platinum loop measuring one millimetre in diameter nine drops of the bouillon swarming with bacilli are taken and deposited on a clean cover-glass three-quarters of an inch in diameter; they are not allowed to touch each other (to ensure accurate measurement). With the same loop, after it has been passed through the flame, a drop of the serum is taken and deposited on the cover-glass. When the serum is very active it may be desirable to dilute it previously with a definite proportion of neutral bouillon. This may be done with the platinum loop. The ten drops are then thoroughly mixed together with the platinum loop, the cover-glass placed on a clean slide (moist surface downwards), and the appearance of the preparation examined one, two, or three minutes, five minutes, two hours, and for special puposes twenty-four, forty-eight hours, &c., afterwards. After the first few minutes the preparation has of course to be kept in a moist chamber, but it is not necessary to place the moist chamber in an incubator. By using this mode of procedure it is easy to study the rate at which clumps are formed and the changes which occur in the preparations from day to day. As the blood has been collected aseptically the observations are not complicated by the growth of extraneous microbes. The blood kept in the sealed pipettes can be examined day after day, as there is no loss of material. Drying of the blood does not prevent the reaction, but it diminishes its intensity, and I think the little advantage that can be gained by drying the blood for the purpose of sending it from the bedside to the laboratory is dearly bought at the expense of the doubts which it gives rise to when the reaction is feeble. The use of the pipette is very nearly as convenient as the use of a slip of sterilised paper, and it is quite easy to have a good supply of, or to manufacture, such pipettes. I need not say that it is easy to estimate the potency of the serum of patients suffering from typhoid fever by varying the proportions between the serum and the culture. The proportion $\frac{1 \text{ serum}}{10 \text{ culture}}$ indicated by Widal I have found to be extremely convenient. Some serums, however, react in much smaller quantities; in one case it was found that $\frac{1 \text{ serum}}{150 \text{ culture}}$ still gave the reaction clearly. Except in very doubtful cases it is unnecessary to increase the proportion of serum; but after drying it may be necessary to increase the proportion to $\frac{1 \text{ serum.}}{1 \text{ culture.}}$ I have so far preferred recent cultures in neutral bouillon to emulsions of the bacillus grown on agar or on gelatin. The bouillon cultures are remarkably uniform. The bacilli are extremely motile and are evenly distributed through the fluid.

The simplicity of the method may induce clinicians to use it at the bedside. I doubt whether this would be a wise application. The whole method depends for its success on the purity of the cultures, on their being in an active state of growth, on their being free from clumps, and on the observations being made by men to whom bacteriological observations are so familiar as to prevent those many slight sources of inaccuracy which attend experiments made by those who are not in constant training. The very simplicity of the method is for these reasons a source of danger, and I would not be surprised if the generalisation of the method were attended by disbelief in its value if it is to be used indiscriminately by anybody who happens to possess a tube labeled "typhoid bacillus" and a platinum loop.

(To be continued.)

THE INFIRMARY MEDICAL SUPERINTENDENTS' SOCIETY. — The November meeting was held at the Camberwell Infirmary on the 28th ult., Mr. Walter Burney presiding.—Mr. J. C. H. Beaumont exhibited cases of Tuberculous Disease of the Knee-joint; Ovariotomy; Secondary Deposit in the Liver three and a half years after Ovariotomy; Great Osteophytic Enlargement of Knee-joint; Myxœdema; and Pneumo-arthropathy. It was announced that the Local Government Board had directed that for the future no head nurse was to be appointed unless she produced certificates of three years' training at a recognised school of nursing maintaining a resident medical officer.

THE HÆMATOZOON OF MALARIA AND ITS DISCOVERY IN WATER AND SOIL.

BY SURGEON-CAPTAIN PATRICK HEHIR, M.D. BRUX., F.R.C.S. EDIN., D.P.H. CANTAB., F.R.S. ED.,

LECTURER ON PATHOLOGY AND MEDICINE IN HIS HIGHNESS THE NIZAM'S MEDICAL SCHOOL, AND ON CLINICAL MEDICINE AT THE AFZUL GANJ HOSPITAL, HYDERABAD.

(Continued from page 1518.)

53. IT is outside the purpose of this paper to deal with the history of the literature of the pathology of malaria, which is now to be found in every good text-book on medicine and pathology, but it is necessary to recite the history of the present paper. Even several years ago there was a considerable disparity in the views I propounded from those ordinarily accepted, and as the present *résumé* of my work is an advancement on my original researches it is necessary to recite in general terms the nature of these differences and what I consider to be the causes of our having remained at a standstill as regards our knowledge for the last ten years.

54. Perhaps the most suitable way of dealing with the subject is that of describing the individual forms met with, remarking upon their inter-relation, and subsequently dealing with their morphological and developmental relations.

55. *Instruments employed.*—The instruments used in the first series were Zeiss's No. 1ª stand, No. 3 eye-piece, DD and E dry objective lenses, his $\frac{1}{12}$th and $\frac{1}{18}$th inch spochromatic oil immersions, with Abbe's achromatic condenser. For coarse observation I found Zeiss's DD objective satisfactory, and with it one was also able to watch the effects of irrigation of the field with solutions of quinine and other drugs. As each slide was brought under observation a preliminary general examination was made with the DD objective lens, and subsequently, as a rule, a detailed examination with the $\frac{1}{12}$th inch oil immersion was carried out. In the second and third series from start to finish apochromatic oil immersion lenses were employed (from $\frac{1}{12}$th to $\frac{1}{18}$th inch), in conjunction with compensating oculars, Nos. 4 to 12. Whenever attention was attracted to something new or peculiar the $\frac{1}{18}$th inch was used to analyse it. Until the year 1893 I did not find the powers beyond $\frac{1}{12}$th inch of any special use except in occasionally enabling me to follow in fuller detail the structure of the more minute organisms. In the third series of observations I first used the $\frac{1}{18}$th inch homogeneous immersion lens (Reichert's) with from Nos. 6 to 12 compensating eye-pieces, and it was during the period of their employment that I found the extraordinary forms and the processes about to be described. Now that one has become familiar with these peculiar structures the very high powers are found to be less urgently necessary. In the first series I found that the most satisfactory staining fluids were saturated alcoholic solutions of (*a*) methylene blue; (*b*) fuchsine; (*c*) gentian-violet; and (*d*) methyl-violet, which have been given in order of merit. Methylene blue is a highly satisfactory staining fluid, it gives accurate definition to the outline of the cells, demonstrates the stroma, and stains all pigmented cells deeply, and as in an investigation of this description it is necessary to adhere to a uniform system of staining of some kind for comparison this was the dye used for that purpose. In the second series methylene blue and eosin with or without a previous film of osmic acid vapour were almost exclusively used. The stains used in the third series are given in detail later on. Nothing can equal the beauty of preparations and the success of the results obtained by Löffler's alkaline solution of eosin and methylene blue, especially when combined with a weak mixed solution of osmic acid and chromic acid.

56. It was impossible for Laveran, working with a magnification of 460, to follow out the life-history of this organism; indeed, we might state that it is scarcely possible to discern the gross characters of the parasite with this power. Even with a $\frac{1}{12}$th inch apochromatic objective and moderately high oculars the different forms of the parasite can only be made out with difficulty, but we cannot distinguish the extremely minute points observed in the ooze or fluid discharged by some of the chlamydospores, nor can we follow

out the transparent flagella or clearly see the flagella of the smaller spore forms, except in an unusually good light. To carry out this research with facility we require unusual magnification which is nowadays, under the excellent definition given with homogeneous or apochromatic objectives, attainable with a $\frac{1}{16}$th or $\frac{1}{18}$th inch lens, when combined with a No. 8 or 10 compensating eye-piece (Zeiss's formula).

57. It is a curious circumstance that in most cases, except those of characteristic malarial infection, we note the same stage occurring simultaneously in all parts of the slide. This, however, may not always be the case, and it is markedly influenced by the temperature of the preparation at the time. If we keep one-half the slide more or less cool by the constant irrigation of the surface with cold water all further development ceases, but only temporarily, for if the temperature be again raised, assuming that we have rendered evaporation impossible by an impermeable border of cement, the parasite resumes the developmental processes.

58. In every instance the more developed the parasite the less distinct and the more transparent and invisible it is, and this invisibility advances till the parasitic forms disappear from the field of view or can only be seen with difficulty. There is one exception to this and it is chiefly met with in the quartan form—where the hæmoglobin is largely dissolved in the plasmatic fluid it gives the appearance of the parasite having been stained.

59. One of the most remarkable facts in connexion with this aspect of the subject is the facility with which each form of the parasite is capable of finding a suitable partner for itself, as if some psychic intuitive or instinctive influence were in operation. This is, no doubt, one of the important features of the flagella, and it is possible that the pair of globules in the anterior part of the major parasite has some influence in this direction. This feature is seen in every form of the parasite, and in one sense it is no more wonderful than the elective affinity they have for the red blood-cells as a source of oxygen and suitable pabulum as well as an appropriate temporary residence.

60. I now entertain no doubt as to the existence of two distinct and easily differentiated species of the hæmatozoon of malaria, and were we to investigate the condition of the blood in three consecutive cases of quotidian, tertian, and quartan ague all doubt would be dispelled.

61. There are some extraordinary features about the quartan parasite in many instances, such as is the enormous numbers of spores developed from some of the parental structures, the much larger number of the asexual ovoid bodies than in the other form, &c.

62. I have no doubt but that had such enlargements as these been employed by other observers in combination with suitable pigments the new forms hereinafter described, would have been discovered earlier. Granting the possession of good immersion lenses of the newer formulæ and compensating oculars, some of the larger micro-organisms described become so conspicuous that they at least strike us as being curious. Indeed, when making my first observations in this connexion, it was for the moment thought that perfectly new parasitic forms were being investigated, but the finding of the same micro-organisms in the blood of several consecutive cases of malarial disease dispelled this notion. I was particularly misled by the presence of cilia in all the larger and most of the smaller forms. A number of bodies of varying shape were to be seen, generally of ovoid or oblong form, in most instances with one acuminate end which has an exceedingly transparent flagellum of varying length, but usually from one and a half to three times longer than the body in active motion. The occurrence of a number of transparent globular bodies must be noted, some of which seem to make their appearance in places where nothing was previously visible. All these seemingly new, or at least unfamiliar, forms were undoubtedly calculated to detract one's attention from what had been previously learnt and observed regarding the malarial parasite and to engender the impression that a perfectly new protozoon, or several protozoid forms, were the objects of investigation. A few days' work soon dispelled this notion, especially when the various bodies were traced back by employing gradually decreasing magnifying powers, a line of observation which showed the different relations between these various bodies and those I was already familiar with. It was this method which also taught one how utterly hopeless it was to acquire any degree of certainty as regards knowledge of the real nature of this sporozoon with the ordinary magnifying powers used, especially in the absence of proper staining.

GENERAL REMARKS ON THE MALARIAL PARASITE.

63. When, a few years ago, I first discovered the real nature of this parasite and its power of penetrating the tissues and gaining access to the bloodvessels I expressed the opinion that the poison might reach the system either through the alimentary tract or be inhaled. I have now, I believe, enough evidence to make this statement in positive terms.

64. At one time I thought that the hæmatozoon of malaria was similar to that of cholera, but I have now fully satisfied myself that they are distinct species of the same genus. The differences between the two groups of parasites is not imaginary — they are absolute and unequivocal, but their behaviour as regards destruction of the red corpuscles, their method of division both by sporulation or endogenous multiplication after union of nuclei, and by simple division the growth and development of spores are all similar. But there are conspicuous differences in the details of these processes. Amongst the gross differences we might state that the cholera organism stains much more readily and more deeply than the malarial parasite. In short, both these hæmatozoa are monads and as such the laws which regulate their life-histories are at least similar.

65. Each polymorphic form of the parasite has mostly its own form of sporocyst, which is described in the following remarks; but this is by no means uniformly so because the chlamydospore producing a particular form may vary considerably in shape, size, and appearance. Thus the rosette of Golgi is a true sporocyst, but the same form of spore may be produced in a large multilocular structure producing from forty to sixty spores in one brood.

66. This I first ascertained by finding that in many instances they contained one or two embryos in their meshes, the spore for some reason or another not making its exit in the natural way.

67. In many preparations made with hardening or fixing agents we find a number of ragged-looking and elongated fibres of protoplasm. Some of these are of considerable length and may show branchlets here and there. I had for years mistaken many of these for actual flagellate structures. During the last two years, however, I have satisfied myself that they are really the disintegrated framework of the larger chlamydospores. In other instances, similar pseudo-flagella are the straightened out cell-wall of circular discoid parental bodies, which remain after rupture of the cell-wall and setting free of their embryonic contents. Or they may be the condensed and hardened part of the margin of the ooze or discharge which is secreted by one form of parent cell. They are nevertheless confusing, and were a source of considerable trouble throughout these investigations, as I had never been able to trace their origin from a cyst nor from any one kind of crescentic body.

68. The question of the unity or plurality of the poison of malaria is one which has for many years roused a great deal of interest. The fact that, notwithstanding the enormous amount of attention it has attracted and the patient labour employed to solve it, there is still so much difference of opinion leads one to consider the matter still *sub judice*.

69. Personally I have devoted no small share of time in endeavouring to arrive at a definite conclusion on the subject, but it is only recently that I found myself in a position to be able to express an opinion regarding it. The great complexity in the life-history of malarial parasites is to a certain extent accountable for the difficulty met with, but by far the most potent cause of failure has been the fact that in many cases we have to deal with multiple infection; in other words, the different forms of malarial organisms are co-existent in the blood and going through their life-history. On one occasion I met with no fewer than five generations of organisms in one case, that of double quotidian ague. To add to this complexity we have the fact that in the blood the malarial organism is rarely stationary—at least, as far as the peripheral circulation is concerned. Indeed, it is seldom that we get precisely identical characters in the field even if we examine the blood at intervals of an hour.

70. When I originally began these researches I accepted the views propounded by Laveran that the malarial virus consisted of only one organism, which was polymorphic in its nature, and I may here confess that I wasted a great deal of time in endeavouring to satisfy myself on this point. I have now arrived at the conclusion that there are only two forms

of malarial parasite—the tertian and the quartan—and this opinion I have held for the last fifteen months. I do not mean by this, however, that in every case of malarial fever we get either the tertian or the quartan parasite alone. In a number, many cases met with, we have the two poisons circulating in the blood at the same time—a mixed infection. It is invariable, however, for one or other species of the parasites to predominate, and most frequently that form is the quartan parasite. We get it in the most peculiar forms of periodicity; thus it alone is frequently responsible for the large and important group of malarial fevers which we speak of as "irregular." Again, it is most frequently the cause of malarial cachexia, as it is also the condition popularly spoken of as "low malarial fever." It is likewise the cause of simple quartan ague, of irregular quotidian, and often of pure quotidian. In cases where there are two generations of the quartan parasite present we may have one attack of ague to-day, another to-morrow, the third day being missed. Or we may have three generations of the parasite with a regular quotidian, or double quartan with two generations of the parasite sporulating on the same day, separated by from eight to twelve hours.

71. There are two definite varieties of the parasite, the quartan and the tertian, the former alone occurring in human blood about fifteen times more frequently than the latter alone, whilst mixed infection occurs in about 14 per cent. of cases. The quartan parasite gives rise to by far the largest majority of the malarial fevers met with.

72. As previously stated, the researches of which this is a summary have extended over nine years, in a locality where malarial fever occurs throughout the year with epidemic exacerbations.

73. Amongst the more common varieties of fever caused by the quartan parasite are—(*a*) quotidian (by far the most frequent); (*b*) true quartan; (*c*) irregular, which often begins as a quotidian, but in which one of the broods ceases to exist every now and then; (*d*) a fever coming on every eight or ten days, every fortnight or every month; (*e*) chronic malarial fever, with a temperature not exceeding 100° F., but with enlargement of the spleen and liver; (*f*) malarial cachexia; (*g*) primary enlargement of the spleen with or without subsequent attacks of pyrexia; (*h*) mixed tertian and quartan infection, causing an atypical form of intermission; and (*i*) lastly, the quartan parasite is responsible for many of the complications arising from malarial infection. The *tertian* parasite is most frequently met with in the blood of patients suffering from one or two forms of malarial fever—true tertian, or quotidian; but it may be found in cases where the quartan exists, the latter speedily effacing it. As the tertian species has less tenacious vitality it is often crushed out of existence by the quartan—"the survival of the fittest." The tertian parasite most frequently leads to either—(*a*) true tertian ague, or (*b*) ague quotidian, with double infection of two generations of the parasite carrying out their life-history in the blood at the same time; and (*c*) irregular intermittent fever. When it co-exists in the blood with the quartan parasite it gives rise to simple tertian ague, when only one generation of the tertian parasite is carrying out its life-history in the blood.

74. In the Deccan the major varieties of fever produced by malarial parasites may be at once recognised by stating that in 100 cases of malarial fever the average distribution will be approximately as follows:—

(*a*) *Produced by the quartan species:*—	
Quotidian fever	73
Quartan fever	3
(*b*) *Produced by the tertian species:*—	
True tertian fever	15
Quotidian fever	7
(*c*) *Produced by mixed infection:*—	
Alternating quotidian and tertian..	2

75. Many of the regular types of fever may become irregular, the intermission varying; *per contra*, some of the irregular forms may become regular intermittents. It is no uncommon circumstance to find that a quotidian that has recurred daily for, say, a week ceases for one or two days and then come on as a quartan or even as a tertian. In the former case the infection was due to three generations of the quartan parasite, of which two ceases to multiply, in the latter to two broods, if the tertian of which one ceases to multiply.

76. Both species are most complicated in their developmental processes, and perhaps the tertian is the more so. As in the case of the quartan the tertian parasite produces spherical spores from red corpuscles, but there are certain differences. In the tertian the spores are developed in the red blood cells, but (*a*) red cells are smaller, (*b*) lighter in colour, (*c*) more uniform in outline, (*d*) spores are smaller and more numerous, and the residue of pigment is less in quantity and occurs as small particles. I do not attach much importance to the area of the red cell occupied by the spores.

77. Small-sized free flagellated structures develop in spherical cysts, which become oblong, and from which they are set free, or such flagella may be produced within the red cells themselves. There are also enormously large chlamydospores, within which free flagella of varying size develop, but without any special wall. They form large egg-shaped sacs, which fit into corresponding excavations in the chlamydospores. In forming flagella these ovoid bodies enlarge, especially in the longitudinal direction; some of the flagella are long and broad and curled up at the ends, which are pointed; others are long and narrow, and all split up longitudinally into their ultimate flagella; and later may even split across into minute rod-shaped spores. These are peculiar in staining deep blue, and not red, with Löffler's solution, whilst the surrounding protoplasm of the chlamydospores stains red.

78. There are also considerable numbers of ciliated spherical bodies, the cilia being long, firm, and pass out at right angles abruptly, leaving spaces between each other, in which spaces arise a considerable number of varying sized cyst-like bodies which are set free, and become the hyaline spherical body mentioned above. As a rule this latter occurs either when the fever is present or during the intermediate stage. These spherules stain light purple with Löffler. In the blood preceding the fever stage we have the small spherical spores from red cells and the groups of spores in the chlamydospores set free.

79. Simultaneously with the production of the small spherical spores there are formed—(*a*) small ovoid bodies; (*b*) minute ciliated and nucleated spherical spores; (*c*) minute crescent; and (*d*) minute amœboid bodies. At the same time we notice that the red cells are to a large extent being infected with these embryonic structures, which in a few cases lie on the surface, but in most make use of it as an encasing cyst.

80. During the intervals between the attacks of ague, if we examine the blood, we find that the chief parasitic structure of the tertian species is the chlamydospore, of which there are several kinds: 1. Enormously large and coarse, with large ovoid loculi and a moderately thick framework, but the ovoid-cystic cells are never in contact with one another. These are the special sporocysts for the tertian form of spores. 2. Spherical bodies. 3. Large triangular cystic cells. The mesh-work in the first named is much finer than the last, looking like that of ordinary adenoid tissue or a small round-celled sarcoma, whereas in the last it looks like the stroma of a scirrhous cancer with these differences—the alocoli do not communicate and they only contain one cell each. They are best seen when the process of disintegration is half advanced. 4. Chlamydospores which are smaller and with a finer mesh-work; the meshes contain ovoid nucleated cells, the whole staining red with Löffler. These are the sporocysts of quartan spherical embryonic spores and are sometimes very numerous. 5. Chlamydospores within which cystic bodies are produced. 6. Those forming the group of small spherical spores in the red cells.

81. Associated with the tertian parasite we also have star-shaped bodies of medium size, with moderately long cilia, having also two contractile vesicles, the whole structure developing spherical cystic bodies. These stellate structures are developed from another variety of chlamydospore to be described later on. If we keep the blood from coagulating, by careful observation it is possible to keep these bodies in view till they rupture. Either methylene blue or Löffler's alkaline solution stain them well, especially the latter, the eosin of which maps out the outline of the contained bodies, whilst the contractile vesicles, nucleus and flagellum are well brought out; these effects are intensified if osmic acid vapour is used before the stains. It is then seen to stand out in relief because of shrinking due to the vapour of osmic acid. The use of osmic acid in causing the stained preparation to retain the appearance presented at the moment of abstraction of the blood, no matter what form of aniline dye be used subsequently, is, I believe, one of the more

useful of recent improvements in the colouring of blood preparations. It is also of special value in causing the red cells to "take" any one of the aniline dyes, whereas without this film of osmic acid the hæmoglobin of red cells stains perfectly only with eosin. Personally, I am not aware that this idea in regard to the enhanced usefulness of osmic acid preparations has been advocated previously. Anyhow, it is a most important addition to the means at our disposal in blood examinations.

82. One variety (the largest) is formed in fevers produced by the quartan parasite and the other in those of tertian origin.

83. Some excellent descriptions of the process of formation of these forms have been given, especially by Golgi and Mannaberg, and there is little to add to them. It is necessary to state, however, that I do not consider the spores thus produced to be formed by direct division, but that they stimulate in a diminutive form the plasmodium of the myxomycetes; that is, they are true sporocysts, formed by the previous conjugation and fusion of two embryonic spores in which the nucleoli disappear, the nuclei fuse and undergo division.

84. It is only exceptionally that we get a case in which the developmental processes are regular and uniform. In almost all there are several phases of the parasite undergoing changes simultaneously. Most frequently, however, we find that there is a quotidian from infection with the quartan parasite.

85. There is a whole class of bodies to be met with which does not appear to have been mentioned by other authors—viz., free flagella. These do not refer to the free flagella developed from elongated crescents, but to ones that are developed in special cysts. There are three varieties—large, medium, and small. The large ones for a time look like silk fibre in the field, but soon become granular or variously striated, and eventually disintegrate to give origin to different forms of spore, whilst the long and narrow kind are produced either singly within special cysts, or in larger cysts of the same kind, and set free.

86. They are met with specially in tertian ague and the more continued forms of malarial fever, whilst the crescentic varieties are met with chiefly in quotidian fever. Besides these there are other forms of flagella which I have termed pseudo-flagella. They and the foregoing will be dealt with in detail later on.

87. No part of the malarial parasite undergoes disintegration; there is no waste of tissue or developmental force anywhere—even parts of the framework of the sporocysts are reproductive. This is well seen in the case of the tertian parasite, in which the flagellate forms after full development subsequently undergo sporulation by transverse division.

88. In every severe case of quotidian fever, after the blood has been under observation for a time, what appear to be the red cells are seen to change their characters so as to develop into two kinds of cells, one homogeneous and the other granular. Close observation and proper staining show that both kinds are flagellated. Later on it will be noted that these pair off, so that one granular is engulfed by the hyaline and the combined body so formed develops into one large chlamydospore.

89. Having fused their nuclei sporulation begins, the combined body breaks up into a number of spherical, oval, or oblong bodies, which grow to the size of their parts.

90. In some cases two bodies of the same kind, either homogeneous or granular, unite to produce spherical sporocysts, but this is rare.

91. In other instances we find one of these spherical cells enlarge, become globular, and finally split up directly; that is, the protoplasm of the cell itself breaks up into elongated flagellate spores. In all instances except the last named the process of reproduction appears to be one of sporulation through the nuclei—a true karyokrosis.

92. Besides the two groups of large oval cells mentioned there is a third which also results from the fusion of an organism of a similar kind, and develops within it transparent or slightly opalescent fluid, which goes on increasing till it bursts its envelope and is poured out in the homoglobin of the ruptured cells, but does not mix with the *liquor sanguinis*. The quantity of this fluid is seemingly very great indeed. The outer limit of the area is well defined. In the area itself, after a varying number of hours, many yellowish spots develop, which ultimately grow into large flagellated ovoid bodies like the parent cell.

93. In the quartan parasite there is developed one large elongated mass which forms a sporocyst within which spherical cells develop which look very much like red blood cells. A similar group of cells forms in the large irregularly oblong chlamydospores, but they have a closer resemblance to the flagellated spherical body which develops within the red cell.

94. As in the case of quartan ague one variety of the large oblong or irregularly spherical cystic-cells produce a peculiar fluid which is discharged from the ruptured part of the sac, and in which we see minute points of a yellowish colour which increase in size and become flagellated. The area occupied by this fluid is very rarely occupied by other forms of the parasite.

95. In tertian ague we get two, and sometimes even three, forms of flagellated structure: (1) a long and broad variety; (2) a long and narrow variety; and (3) a medium-size stunted form.

96. The long and broad variety breaks up into small spherical, cyst-like bodies or into excessively minute, refractive, spore-like bodies, which soon separate and move free in the field and develop into oval flagellated bodies. Sometimes these flagella develop small crescentic rods, the concavity of which is soon filled with protoplasm; or fine, rod-like processes may be thrown off which give off branchlets at acute angles, the intervals being filled by protoplasm, or they throw off minute, rapidly-moving, small, irregular bodies, which develop into amœboid bodies or actually enter any cystic bodies found in the field and develop into oval flagellated bodies.

97. It is in tertian ague that we especially get the large granular "swarming" cell which as the result of many observations have been considered to be large white cells or macrophages. This, however, is an interpretation of their nature which these researches do not appear to justify. I arrive at this opinion because they are provided at an early stage with a cyst-wall, that they are flagellated, provided with vesicles, that they contain large nuclei, and after that they are formed by the engulfing of one body into another, subsequent to which the so-called granules are developed. Close observation of these granules, however, shows that each one has a limiting wall of its own as well as a nucleus and a nucleolus, develop flagella free themselves, and wander about the field. The longer these large white bodies wander about the fewer become the granules, which are, in short, nucleated spores. In some cases of tertian the spores are excessively small. There is no structure in the malarial parasite which more accurately answers to the description of a "plasmodium," using the term in its zoological sense, than the one just referred to. It is so important that it will be necessary to revert to it more in detail when describing the individual forms of this parasite.

98. The largest form of chlamydospores is that within which is developed medium-sized granular and ciliated spherical bodies, which later on, being set free, closely simulate crenated red blood cells. Some of these spherules commence sporulating immediately after making their exit, but others undergo binary division and subsequent union with other bodies before doing so.

99. Another large sporocyst develops a clear cyst-like structure which, if set free, grows rapidly; these seem to correspond with the homogeneous variety of round cells. A fifth form of sporocyst also seems to develop an exceedingly small spherical spore rapidly acquiring long flagella. The parent has three long flagella.

100. With a considerable experience in blood examination I have no hesitation in stating that no investigation should be considered complete until the processes of staining and fixing herein described have been carried out. By the exclusive adoption of other methods it is possible to fail to discover even some of the larger forms of the parasite; especially is this so with regard to some of the chlamydospores, transparent spherules, as well as liquid protoplasmic discharge. This method must, however, be carried out with care, for overstaining renders a preparation useless, even obscuring the details of structure, while deficient fixing or staining fails to bring out such forms as are present. An observer who has not carried out this process before will be astounded with the first results of an observation on a well-marked case of malarial fever.

101. Therefore, microscopical investigation of malarial blood can only be reckoned complete when it has embraced the following:—(1) Examination of the fresh blood at least every hour from the commencement of an attack to that of the next; (2) examination of the fresh blood that

has been fixed while in the moist state—that is, immediately after abstraction; (3) examination of the fresh blood that has been stained in the moist state by adding a drop of the weak watery hyaline stain selected to the still liquid blood, or applying a drop of the latter to the finger and pricking through the staining fluid and examining it at once; (4) examination of the fresh blood bottom stained and fixed according to the plan previously laid down; and (5) examination of the blood carried out in the same way as for bacteria—drying, fixing by passing through a flannel three times, staining according to rules for the stain or stains used, washing, drying, and mounting in zylol balsam. Examination of the fresh blood should be carried on half-hourly in connexion with each species of the parasite and each one of the polymorphic forms of such species from the commencement of one attack to the commencement of the next—a feat the achievement of which involves an amount of labour only those who have carried it out can duly comprehend. There are some cases in which at the commencement of an investigation it is absolutely necessary to watch the changes in the parasite forms continuously.

102. Fixing is usually best carried out by means of osmic acid vapour, which when properly done has the effect of causing the cessation of all movement in the parasite, as if by an electric shock, each form being made to permanently retain the shape it possessed the moment the vapour penetrates it. If this is done we obtain a series of permanent preparations which should be numbered, recorded, and described at once, and kept for reference. Staining is best done by one of the combinations of methylene blue and eosin, Löffler's being, I think, the best. It has the advantage over fixing that the latter does not touch the more attenuated or delicate forms of the parasite, especially those in water—a fact which points to the high value of the combination of their methods.

103. The combination of fixing and staining yield by far the best results. We should recollect that the stain continues to heighten in colour for a few hours. This process has the effect of mapping out practically every part of the plasmodium on the slide, including the intra-corpuscular and the intra-cystic. The special virtue, however, resides in the prominence it gives to structures, which have hitherto been so transparent in fresh blood as to be invisible to the most experienced and trained eye. It has the further advantage of enabling us to see all forms of the organism with an ordinary $\frac{1}{12}$th objective and a moderately high compensating ocular. It also enables us to see one form of the spherical cell dividing into two parts, the division being clearly commenced in the nucleus, the flagella of all forms which were previously highly transparent now coming into view; the engulfing of the granular by the hyaline spherical cell; and of the three forms of ovoid cells, &c.

104. In concluding this preliminary account of the malarial parasite I might state that, notwithstanding the constancy of the different species of the malarial parasite and of the characteristics of the polymorphic forms, some of them present differences which have sometimes tempted one to believe that new forms of the parasite were under consideration. If we take this circumstance together with the fact that these different forms are in some instances of momentary duration, and again that the predominating forms vary with the severity of the attack, we have an adequate explanation as to the different descriptions of the various forms of the parasite given by different writers as well as the different interpretations propounded, although I am compelled to adhere to the belief that no previous worker in this field has seen or described what I have termed the invisible forms of the parasite.

105. Some of the micro-organisms to be watched and followed in malarial blood are amongst the smallest bodies found under the microscope. We have an instance of this in the minute micrococcus-like spore produced by the disintegration of the flagellum of one form of this parasite, another in the infinitesimally small bodies produced in the fluid formed by one special variety of chlamydospore, and in one form of the extremely small cystic body produced in one large chlamydospore.

106. In most of the chlamydospores small ovoid bodies are formed and separated and acquire flagella, the most conspicuous flagella being those at the narrow end. In some instances these changes occur before they are separated from the parent cell. The mesh-work likewise disappears, breaking up into an irregular flagellated structure.

107. We may now find many fine flagella appearing in the field in places where nothing had previously been seen. They are usually in syzygies. Lastly, there is a most curious arrangement due to infolding of the fine flagella, the intervals between the folds being filled up with thin protoplasmic material, and in the meshes at a later stage we see the commencement of sporulation.

108. There are now also numerous small nucleated cystic bodies in the field which have been given off by large chlamydospores formed in pigment derived directly from the red cells.

109. When only one flagellum is present, frequently the size and general proportions of the flagellum is out of all ratio to that of the spherical body, in which case it looks like a true flagellum. Sometimes under the same circumstances one long and one short flagellum is attached to the body. Frequently we see one or two particles of pigment on the flagellate process, but there is no certainty about this, nor is there any regularity in regard to the position of the pigment patches.

110. As the quantity of hæmoglobin dissolved in the liquor sanguinis is incapable of staining to any great intensity the parasitic forms that have been set free, as they have usually a semi-transparent or white appearance, such of them as are invisible now stand out in contrast with the more deeply coloured fluid in which they move about. In the case of the encysted and nucleated parasites the intra-cystic bodies and nuclei "take" the pigment more than the other parts and map them out distinctly.

111. If we gently irrigate the field now we can wash out the hæmoglobin, whilst the parasites, from their greater adhesiveness, remain. In this way we get what we may term a natural staining without adding anything extraneous in the form of aniline pigment to the blood, to which the opponents of the parasitic theory take such exception.

112. It may be remarked incidentally that when there is an unusual quantity of hæmoglobin dissolved in the blood all cellular structures contained in it possess the same colour, and it is often difficult to distinguish red cells from spherical bodies or spherules which have developed from the infolding of crescents. There is always, however, one or other modification in each cell which enables us to distinguish its nature. This does not apply to the ciliated spherical cell, which looks immensely like a crenated red-cell.

113. In the tertian species the developmental processes are carried out with less capriciousness than is the case with the quartan parasite or the parasite in cases of mixed ague. Free flagellate forms are on the whole much more common in tertian than in quotidian ague.

114. We often see the large free flagella double up and produce an incomplete circle, the central part of which is filled up by thin protoplasm in which are developed a number of small nucleated spherical spores which eventually burst through the wall and are set free; in other words, it forms a true plasmodium before rupturing, as do most of the other forms.

115. The special directions in which we have hitherto fallen into error are—in recognising that the process of sporulation is one of direct occurrence in the red blood cell, and we shall see that this is a fundamental mistake; considering that the ciliated spherical bodies, with irregular margins, are crenate corpuscles, and the hyaline spherical cells (also flagellated) are "shells" or spherical bodies from which the "spherical body" has been set free; neglecting to follow out the future history of the very large spherical cells, which having become indistinct, ultimately disappear in the plasma for a time, varying from eight to twenty-four hours, and at the end of that time reappearing; neglecting to ascertain the nature of the fluid discharged by some of the large chlamydospores; neglecting to attach any importance to the infinitely small yellowish-white particles that appear in this fluid in progressively increasing numbers, and to inquire into the nature and origin of the oval or crescentic bodies which are developed from these; believing that the whole of the spherical bodies make their exit from the red blood cells—an unavoidable error, unless we watch the process in several fields for several consecutive days, which would teach us that the two cells, from being at first merely in contact with one another, the larger ultimately absorbs the smaller.

116. Referring to the nature of the fluid discharged from certain cells referred to above the absence of any conspicuous contents in the discharged fluid, or of any distinct peculiarity in the nature of the fluid itself, are no doubt

accountable for the fact that its very presence has hitherto been neglected or unnoticed. When preparations of human blood containing it are stained with methylene blue it may be noted that the fluid acquires a faint blue colour, and that it is fairly well defined from the plasma. Even in the freshly abstracted blood it may be well marked, especially in cases of fever due to the quartan parasite. Allowing that this be left unnoticed on a slide containing a large quantity of it, there is some difficulty in recognising why the small yellowish bodies which gradually appear in it should have hitherto escaped attention. They must have been seen by scores of observers, and no doubt the temptation to consider them pigment particles is very great, especially when we take into consideration the fact that there are in the plasma larger and more conspicuous particles of pigment almost all over the slide. Lastly, we arrive at the time when these small bodies begin to move about, first by a sort of lateral oscillation simulating "Brownian" movement without change of position, but soon they do actually alter their position and are seen to move about with great rapidity, appearing as minute nucleated spore-like bodies, and when there are a large number of these bodies in motion simultaneously we get a most peculiar and characteristic appearance, which on close observation presents some of the characters of "bubbling" or "swarming," the extent of their peregrinations being still limited to the area occupied by the fluid from which they are developed. At this time we have a highly transparent granular body which is still of globular form. It now, however, rapidly acquires an ovoid or sickle shape, its flagellum lengthens, and it wanders throughout the field.

117. Again, the process of "swarming" has hitherto been mistaken to be an agitation of granules of pigment in the containing body and supposed to be due to a vibration of the contained fluid, but in reality it is an active movement of a large number of small nucleated organisms, which are seen to move about in the plasmodium with great speed. The parent cell now assumes a somewhat amœbic character and moves very rapidly for about fifteen minutes. It now assumes a spherical form and it becomes stationary; the flagella continue to move for a few minutes and then curiously disappear. At this time a curious phase may be noticed which will be reverted to later on.

118. One of the commonest errors is that of believing that all the spherical bodies develop within red cells. This undoubtedly does occur, but the majority of the spherical cells are developed in independent chlamydospores. Another serious error is that of mistaking the granular spherical cell of malaria for crenated red blood cells. When the blood is stained with eosin and methylene blue we can recognise the difference at once as the effects differ in the case of each of these structures, eosin staining the crenated red cell rose pink, but having no effect on the malarial parasite, whilst methylene blue, which does not affect the red-cell, shows the granules of the spherical cell to be of a light blue colour. Further, in fresh preparations, if we watch the spherical cell we know that it undergoes one of two changes—when of the crescentic series it usually becomes quite smooth and spherical again, and then breaks up into spores, or more frequently it unites with one of the hyaline spherical cells to form a large body, in which are developed sickle-shaped spores.

119. Again, we may, from the shape and appearance of the red cell, recognise that it is a discoid body, which has been blown out as it were, whilst the malarial body is uniformly spherical; that the former stains well with eosin, whilst the latter does not, but that methylene, which has no effect on the red cell, stains the malarial spherical body light-blue colour; the red cell has no contents, except the serous fluid which swells it, whilst the malarial cell has some visible modifications as regards contents.

120. Early in 1891 I learnt that the summer heat of Hyderabad during the day and the heat of the artificial illumination required for night work were sufficient to keep the parasite living in the blood-plasma and at the same time to some extent prevent coagulation of the blood. The facts stated in my first *brochure* were dependent on this discovery, to which I owe much of whatever success has attended my efforts in their researches, and I believe a great deal may still be learnt by this procedure. This point was altogether overlooked by my critics. It was at once apparent, however, that the success under these circumstances must necessarily be limited, from the small quantity of fluid in any one slide preparation.

121. In a large number of cases of chronic malarial infection one of the most frequent changes in the blood is that of finding that certain parasitic forms pass through a considerable part of their life-history within the red blood cell. In some instances the red cells remain more or less transparent throughout, whilst in others they become quite opaque. In the former case the developmental phenomena may be easily pursued, but in the latter all the essential changes are hidden from view, so that much at least of what is going on in the red blood cell has to be arrived at conjecturally. In some we are almost able to follow the principal phases by the fact that we see certain parts of peculiar forms contained in outline, together with elevations and depressions, &c. In that case we have to await further opportunity to verify the conclusions arrived at. This latter method, however, is one to be condemned rather than followed, unless, from exceptional circumstances, we are able to fill in the details, and this is less desirable since there is often a bias, which once created is often difficult of eradication, a condition compatible with the most unimpeachable integrity of purpose, for unfortunately the human mind is, in its operations, neither mathematically accurate, nor is it cast in a mould, nor worked on the basis of a machine. The small degree of elasticity under which the mental operations of the honest labourer after the truth in scientific research are brought into force is perhaps the great cause of our advance in knowledge, by reason of its originating that "difference of opinion" out of which so much has sprung.

122. I have not hitherto alluded to the intrinsic nature of this parasitic organism beyond general statements. I hope, however, to show that it is a true monad, having it natural habitat in water, contaminated by organic matter, probably animal matter resulting from the disintegration of the myriads of the different forms of aquatic monads, infusoria, crustacea, fish, amphibia, &c., and resulting in the almost illimitable destruction of the red blood cells. Indeed, it is possible by the inoculation of healthy blood by malarial water to actually follow the history of this parasite, at least, in the earlier stages of its development, and were it not for the great solubility of hæmoglobin in water I believe it would be possible to carry on a complete investigation in this way. My investigations seem to point to the fact that either the fully formed spore containing chlamydospores may be the medium of communication or the spores themselves, the latter probably being the case when infection occurs from malarial air. Let us suppose that we are commencing an observation on the parasite after its consumption. The following seems to me to be the interpretation of the ordinary course. The ova are drunk, reaching the stomach part are set free, and begin to multiply, whilst the rest enter the blood vessels, in which the process of enlarging and multiplying goes on uninterruptedly.

123. The hæmatozoa of malaria and cholera, the amœba coli of dysentery (which I have proved is a true flagellated sporozöon acting on the columnar epithelium of the large bowel, just as the former two act on red blood cells), and other hæmatozoa, which I propose to describe later on, all pass through an encysted embryonic stage, a flagellate stage, an amœboid stage, a stationary stage, and, lastly, a stage of disintegration, during which the spores are set free. We see this specially well marked in the sporozöon to be found in the blood of syphilitic patients during the period between the second and third stage of that disease. I might, in passing, state that this latter sporozöon has specially well-defined characteristics, and that the so-called bacillus of Lustengarten is only one of the embryonic flagella of this sporozöon, syzygies of which form large chlamydospores which give origin to ovoid flagellated spores. Before paring in this way they often unite at one end with a small spherical spore producing a drumstick-like body, and in a few instances this alone develops into a parental structure. The chief body, however, is a well-defined plasmodium or sporozöon, which has characteristics very similar to those of the sporozöon depicted and described as occurring in malignant tumours. There are also in syphilitic blood two forms of free flagella. These I have described and illustrated in another special monograph.

124. It is sometimes difficult to distinguish certain of the other small forms from the amœboid bodies. Especially is this so when they are moving about, for the small, spherical spores shortly after detachment sometimes assume forms very similar to small amœboid bodies. As a rule, however, we ought to be able to distinguish the spores because their

main body remains more or less homogeneous, and they do not throw out irregular pseudopodia as the smaller amœboid bodies do.

125. When we consider that several forms of the malarial parasite pass through an amœboid stage as one of the natural phases of their development we should be cautious in regard to the structure to which we give this term. Amœboid movement is a phase of the general developmental processes of all sporozoa.

126. The flagella of both spores and parent cells are sometimes thrown out with great rapidity, one cilium or flagellum after another appearing in the field, until in some the whole surface seems to have discharged a number of processes, like an angry porcupine shooting its quills. This is specially well seen in some of the forms met with in marsh-water. In malaria, however, it is never seen so characteristically as it is in cases of amœboid dysentery.

127. There are certain general characteristics in regard to the malarial parasite which may be here mentioned.

128. All forms are changed into a larger form by the combination of two similar or dissimilar bodies. After this incorporation important changes occur, the chief of which are:—(1) the occurrence of an amœboid stage; (2) change to a spherical form; and (3) to segmentation into two parts, then four, eight, and so on, till sporulation having attained its maximum as regards numbers of embryos the latter move about with great rapidity; throughout this long period the parasite is invisible.

129. With regard to the larger forms of this organism it is necessary to indicate that they have certain special characters: (1) they are all flagellated, usually possessing from one to three flagella; (2) they pass through an amœboid stage as well as through a stage of great activity, and finally a stationary stage; (3) they all incorporate another form or body, usually of the same shape as themselves, but smaller and having visible differences in the details of structure, and all undergo one or other form of sporulation; (4) the larger spherical bodies produce a highly granular body with a cyst-wall, containing a large, highly granular nucleus; and (5) many of the ordinary ciliated spherical bodies split into two parts by binary division, producing two flagellated structures, which eventually become the parents of one form of spore-body.

130. As a rule, we find that the parasites aggregate near an air bubble or near the edge of the slide, especially when all the red blood cells have been used up, bearing out the statement that the malarial parasite is ærobic and seeks the source of oxygen.

131. The whole process arises from the decomposition of organic matter in an organic infusion or in a liquid containing animal organic matter. Outside the body this is met with in water; in the circulation the red blood cells bear the brunt of the destructive process. The process is therefore one connected with the decay, decomposition, or putrefaction of organic matter. The infecting agents are doubtless the extremely minute spore-like bodies generated in the sexually mature parasitic cells—the spore bodies reaching the moist surfaces of the respiratory tract when inhaled or the digestive tract by imbibition when taken with water.

132. I think it would be well for us to consider that this parasite is highly complex in the various phases of its development. It may be seen that there are many different structures to be found in the blood of malarial patients, and although it has not been possible to connect all forms in the developmental process I have no doubt but that such connexion does exist.

133. The following enumeration indicates that there are several main structures with their sub-divisions. There are also two special species of the parasite—quartan and tertian. We might consider these *seriatim* or deal with them in the order of their development or of their importance.

134. The most visible form of sporocyst is that which occurs in the red cells, although it is doubtful if more than a small percentage of the embryonic structures occurring in malarial blood is thus produced. It is, however, the one with which writers and workers are most familiar. There are two chief varieties producing two forms of small spherical spores in single red cells, but we shall see that the spores thus formed are few in comparison with those produced in the larger chlamydospores. Numerous red cells infected with the embryos of this form of the parasite may, however, fuse, and this is one of the ways in which the largest aggregation of spherical spores is produced.

Hyderabad, Deccan.

SYPHILIS IN MARRIED WOMEN.

BY JOHN A. SHAW-MACKENZIE, M.D. LOND.

THE presence of syphilis in married women as possibly one of the courses disease is pursuing in the community in the absence of compulsory or voluntary in-patient treatment does not seem to be fully recognised. While, unfortunately, women become infected by disease contracted by husbands subsequently to marriage, it is no uncommon thing to find syphilis in married women when there has been no irregularity on either side since marriage, and when at the time of marriage the husband is supposed to be cured. In this case the explanation is that marriage is frequently the cause of relapse, and in men who have had venereal trouble previously genital sores, balanitis, superficial cracks, abrasions, indurated pimples or vesicles, inflamed lymphatics, redness or discolourations, and urethritis, are common subsequently to marriage or intercourse. It is to such relapses women in many cases owe their infection. Men are very apt to attribute disease to fresh infection when it is nothing else than relapse in themselves. Genital sores may also appear in men and women as a late manifestation, and it is noteworthy that they often present a similarity to primary disease rendering diagnosis difficult. I wish rather to draw further attention to syphilis in women associated with pregnancy. Ill health attributed to their confinement is a common complaint in women, and syphilis affords an explanation in a great many cases. Mr. Jonathan Hutchinson's interpretation of Colles' views is that the mother is syphilised in such a way through the fœtus, syphilised by the father, that she is immune to infection from suckling her child, and that "it is exceptional for such mothers to suffer from ostensible syphilis."[1] It is certainly surprising that the mothers of syphilitic children brought to our hospitals are apparently healthy. On the other hand, gynæcological departments probably suggest that syphilis in parous women manifested subsequently to abortion or delivery is prevalent more than is supposed. Manifestations of syphilis in such women in no way invalidate Colles' observations or Mr. Hutchinson's interpretation. Moreover, they obviously demonstrate the truth of what the negative symptom of immunity to sores of the nipple implies.

Considerable controversy at all times has existed as to the origin of hereditary syphilis. The paternal origin is generally accepted, and with it that maternal syphilis is secondary to conception. The chief points in favour of paternal syphilis are (*a*) absence of primary syphilis in the woman, and (*b*) absence of symptoms of constitutional symptoms. It is significant that in women manifestations are dependent apparently on conception, but as a rule are not manifest till after abortion or delivery. I venture to suggest the following points in favour of a primary origin rather than secondary to conception. 1. The increasing number of cases of local pelvic disease subsequent to abortion or delivery. 2. It is reasonable to assume that a father who can transmit infection to his offspring is in a position to directly infect the wife and simultaneously. 3. Frequency of relapse in men associated with intercourse and marriage. 4. The slight nature of undoubted primary disease in many women apart from pregnancy, often only amounting to a superficial pimple, abrasion, ulcer of the vulva or os uteri, or leucorrhœa which is often diagnosed as a gonorrhœa. 5. Acknowledged cases of constitutional syphilis in men and single women without detection of primary manifestation. The absence of primary manifestations may be explained as Mr. Henry Lee has already stated, "that the true infecting syphilitic poison may pass through the skin or the cuticle and produce its effects upon subjacent parts without any abrasion." Again, "In the vast majority of cases of hereditary syphilis arising from the father the poison is conveyed by means of a discharge originating in the urethra or in some of the neighbouring glands and not from the semen." And, again, "In the cases referred to where constitutional syphilis occurred without any primary lesions being discovered, it is much more likely that the poison was taken up by the blood than through the lymphatic

[1] Syphilis, p. 92.

vessels." The menstrual conditions of the uterine mucosa are favourable to such a theory. Moreover, the absence of indurated inguinal glands does not eliminate the probability of indurated lumbar glands. The absence of constitutional symptoms in many cases presents greater difficulty in the theory of primary infection. I would point out, however, that the theory of maternal contamination secondary to conception not only implies absence of primary manifestation in mother and offspring, but syphilisation and latency of disease in the mother. Moreover, obvious manifestations often rapidly disappear after delivery. Is it possible that the mother may be syphilised without primary manifestation directly by the father and that disease is latent till conception determines activity and manifestations? In support of such a theory, which I admit at the present time is only speculative, I would mention cases in which pregnancy has appeared to light up latent disease in women who have previously had syphilis. Whatever theory is accepted it is perhaps more profitable to recognise the fact that syphilis is common in women following conception by a father who has previously to marriage had syphilis and that many cases of ill-health in married women have a basis in syphilis; that amongst the more common manifestations loss of hair, sore-throat, eruptions, sub-involution, leucorrhœa, menorrhagia, erosion of os, endometritis, and affections of the anus and rectum are prominent, while the more severe lesions affecting the nervous system, bones, joints, and internal organs are not unknown; while in women relapse in syphilis is associated with marriage, pregnancy, and the menopause.

The following are two cases of primary infection from the husband contracted subsequently to marriage.

CASE 1.—This patient had a large, primary, glazed sore of the perineum. She had been infected by her husband fourteen days after the birth of the last child. Five months later the inguinal and post-cervical glands were enlarged. She had an ulcerated throat.

CASE 2.—This patient had an indurated but healed sore of the labium. She had ulceration of the pharynx and enlarged inguinal glands. I saw the case in the out-patient room of the North-West London Hospital and am indebted to Dr. John Shaw and Mr. Jackson Clarke for kind permission to state it. The mother brought her infant twelve months old with an irregular, indurated, primary sore of the anus extending to the contiguous sides of the buttock. The tonsils were enlarged and the fauces inflamed. The inguinal glands were indurated and enlarged.

The following four cases are instances of relapse with local sore in men.

CASE 3.—The patient had syphilis fourteen years ago. He had full courses of mercury and had been to Aix-la-Chapelle several times. He had been married two years. He had now a ragged sore at the frænum without induration. He had not exposed himself to fresh contagion.

CASE 4.—The patient had syphilis some years ago. He had intercourse with a woman of the town and presented himself with a superficial oval sore of the prepuce. The woman, whom I had an opportunity of examining, was perfectly healthy.

CASE 5.—The patient had syphilis thirteen years ago. There was now a circular sore about the size of a threepenny-piece on the prepuce. He was married and had not exposed himself to fresh infection.

CASE 6.—The patient had syphilis twenty years ago. After suspicious intercourse a large indurated gummatous mass about the size of a small egg appeared on the side of the glans. The inguinal glands were not enlarged.

The following are cases of syphilis in parous women in whom no history of primary illness can be obtained and must therefore be due to "conception" or probably to a missed or not obvious primary infection.

CASE 7.—The patient has palmar psoriasis. She was emaciated and had severe headaches. She was liable to pharyngitis. She had two delicate children. She attributes her ill-health to her confinements. She had never had any local pelvic trouble. Her husband had syphilis previously to marriage, twelve years ago. The patient has improved in health under mercurial treatment and is weekly putting on weight.

CASE 8.—This patient had been married seven years. Five years ago she was delivered of a stillborn child. She was again pregnant when she came under my notice and went to term with a living child. She had onychia, was very delicate, and suffered from bad throats. Her husband had had syphilis previously to marriage, but had had no symptoms since. This patient had been under much mercurial treatment.

CASE 9.—The patient had been married eight years and had had bad health for five years. She has a gumma of the right thigh. The first child was born healthy; the second pregnancy (twins) was at the seventh month; the third pregnancy terminated at the eighth month, and the fourth ended in abortion at the fourth month.

CASE 10.—The patient had been married thirteen years. She has had six children. The first died from debility in six weeks. She had never been ill before confinement. She now has sore-throat and a gummatous patch on the left leg.

CASE 11.—This patient had ulceration of the vulva. She had noticed a discharge and soreness since confinement.

CASE 12.—The patient had been married thirteen years. She had had three miscarriages. She has now patches of scaly eruption on both arms, sore-throat, and condylomata about the vulva.

CASE 13.—This patient was well till the birth of the second child four years previously, when sores broke out all over her. She now has erosion of the os and ulceration of the pharynx. There were branny spots all over the body. The first child was delicate and had spinal curvature.

CASE 14.—The patient had been married five years. She had been ill since the birth of a child two years previously who died from laryngitis. She had one abortion previous to a living child. She now had sore-throat and falling hair. Her husband was said to suffer from diphtheritic throat.

CASE 15.—This patient had an eruption for a month and spots on the hand three or four weeks after the first impregnation. Her hair all came off seven months after marriage. The first conception ended in abortion, the second was a dead child at the seventh month, the third was born living but died in eleven weeks, and the fourth was born alive but developed spots in two weeks.

CASE 16.—This patient consulted me a few years ago. She had not long been confined of her first child. The posterior lip of the os was ulcerated and indurated and her local medical man was suspicious of malignant disease. It cleared up under mercury, and she remained free from trouble for three years, when vaginitis and excoriation occurred.

CASE 17.—This patient was a woman aged forty-eight years. Her periods ceased two years previously. She attributed her ill health to her second confinement, after which she was for two years under specific treatment for leucorrhœa and an ulcerated womb. Her first child lived and is now twenty-three years old; the second died from diarrhœa and marasmus at six months. Two abortions followed. She now had severe headaches. A circular brown stain was to be seen on both shins and the left ankle was painful and œdematous. The hair was thin and falling. Her husband was known to have had syphilis.

CASE 18.—This patient had had several miscarriages. An extremely painful fissure of the anus existed with hæmorrhoids and much rectal discharge. Her husband had been treated for syphilis.

Tyler Smith in 1855, under "Secondary Syphilis the Result of Pregnancy,"[2] amongst other cases cited the following. A woman was in very bad health with leucorrhœa and menorrhagia. There had been several abortions. She had violent headaches and constant bearing-down and pelvic distress. She referred her maladies entirely to three abortions and to menorrhagia following them. The uterus was prolapsed and the os and upper part of the vagina excoriated. She went into the country and again aborted at the fifth month. After this abortion all her old troubles returned, and she also complained of acne of the face and neck, sore-throat, and pains in the frontal bones. The husband had had syphilis eleven years before and was pronounced "cured" before marriage. Another case was that of a woman who had had a miscarriage and two or three abortions. She attributed her declining health to the time of the abortions. She suffered from leucorrhœa and menorrhagia, papular eruptions on the os uteri, with profuse cervical discharge. She was, moreover, blind from syphilitic amaurosis and paralysed in her lower extremities. It is possible in this case that the origin was directly from her husband. Another case was that of a woman who at the time of her marriage was in perfect health. After the birth of a child she had eruptions on the skin,

[2] Pathology and Treatment of Leucorrhœa.

sore-throat, and falling hair, profuse leucorrhœa, and the cervix was swollen and denuded. The husband had had syphilis five years before marriage.

Diday in 1859 reported the following case of "transmission of syphilis from the fœtus to its mother."[3] The patient was a woman who had been healthy both before and after marriage. She was delivered of a child at the eighth month. The child showed signs of hereditary syphilis. About the same time the mother suffered from pustules about the nose, mouth, scalp, and genital organs. A week later a roseolous eruption appeared on the trunk and ulcers in the throat, with periosteal pains. Langston Parker in 1860 stated and offered cases: "In all the cases I have detailed it will be noticed that the mother has escaped, but there is another class of cases in which the mother does not retain this immunity. At a variable period after conception she exhibits well-marked symptoms of syphilis, both in the genitals and in other parts of the body."[4] A. Fournier stated: "Syphilis in the child nearly always implies syphilis in the mother. Sometimes the mothers are unaffected, whilst at other times they (syphilitic children) react upon them and communicate syphilis to them";[5] whilst Charrier, Cullerier, and Notta hold that "every syphilitic child is born of a syphilitic mother."

The following are cases of relapse associated with pregnancy.

CASE 19.—This patient was a woman who five months after marriage suffered from sore-throat, tubercles around the anus, and stricture of the rectum. Nine months after marriage the husband developed a primary hard sore with typical inguinal glands followed by secondary symptoms. The wife now was found to have an abrasion or ulceration within the os uteri. Eleven months after marriage a child was born which was supposed to have been dead about ten days. If testimony obtained with much care and under favourable opportunities is to be believed, neither husband nor wife had exposed themselves to contagion from any illicit source subsequently to marriage.[6] It is evident that disease in the wife was contracted previously to marriage, and, being lighted up by activity of the parts, irritation, or pregnancy, was communicated to the husband.

CASE 20.—This patient admitted that her husband was diseased five years previously, when a child was born, from which she dated her ill health. She was again pregnant. Sores were present on the internal labia, erosion of the os existed, there was profuse leucorrhœa, ulcerated throat, and the inguinal glands were enlarged. (See also Case 8.)

CASE 21.—This patient was a woman who had been married three years. There had been three pregnancies, which terminated in all between the third and the seventh month. After the first pregnancy she came out in a copper-coloured eruption. Every time she was pregnant fresh eruptions came out. Her husband had a primary sore fourteen years ago and had pityriasis now.[7]

The following are cases of relapse at the menopause.

CASE 22.—This patient was aged forty-four years. She had had floodings the previous winter. The periods were now irregular. Her eldest son was eighteen years of age. She had had three miscarriages since the birth of two other children. She admitted that her husband was diseased many years ago. She now has leucorrhœa, a sore on the internal labium, a large mucous tubercle on the inside of the left cheek, sore tongue, and psoriasis of the hands.

CASE 23.—The patient had been married twenty-two years. She had now arrived at the menopause. There were sores on the vulva which prevented walking. She had profuse leucorrhœa. The mucous membrane was in a caruncular condition. Her first four children were born dead at the seventh, eighth, and ninth month. Her fifth, which was born at term, lived. At this time she was ill, became totally deaf, and lost her hair.

CASE 24.—This patient was aged forty-seven years. She complained of bearing down. The vulva was superficially excoriated. Her last period occurred twelve months previously. Eleven years ago she suffered from similar ulceration and discharge.

CASE 25.—This patient was aged forty-nine years. She had been married twenty-nine years. She had one miscarriage at the third month; one child born alive lived eight weeks; and one son is alive, but wears a permanent tracheotomy tube. She has indurated sores on the arm. There was a circular gummatous patch of skin on the left leg.

CASE 26.—This patient was aged forty-five years. She had been married twenty-five years. Her husband was known to have had syphilis. She had had three or four children and no miscarriages. Her periods were now irregular. She suffered from specific rheumatic pains and pharyngitis. She had never had pelvic trouble.

* These cases, together with many others which have come under my notice, tend to support the view that either the immunity of so-called "syphilis by conception" is not so complete as is generally held, or that a primary modified infection of the mother is probable in every case. No doubt immunity may, and does, occur in either case. The often rapid disappearance of obvious manifestation subsequently to delivery is suggestive that subinvolution itself contributes to immunity partial or complete.

Savile-row, W.

[3] A Treatise on Syphilis in New-born Children and Infants at the Breast. Translated by G. Whitley.
[4] On Syphilitic Disease, fourth edition.
[5] Syphilis and Marriage. Translated by Alfred Lingard.
[6] Lectures on Syphilis, by Henry Lee. By kind permission.
[7] Mr. Lee's Case-books, by kind permission.

AN OUTBREAK OF TYPHOID FEVER IN A PROVINCIAL TOWN—ITS PROBABLE CAUSE.

BY H. POOLE BERRY, M.B. LOND., M.R.C.S. ENG.,
MEDICAL OFFICER OF HEALTH OF THE BOROUGH OF GRANTHAM.

IT may, I presume, be regarded as a settled fact that the great majority of outbreaks of typhoid fever are traceable to a contaminated water-supply. That in not a few instances milk has been the medium of the dissemination of typhoid fever has been universally recognised ever since Dr. Ballard's investigation of the epidemic in Islington in 1870. That oysters grown in impure water and that even ice-creams carelessly manufactured in insanitary surroundings may be a cause of typhoid fever would seem to have been now pretty well conclusively proved. In all these methods the typhoid germ presumably gains access to the system of the patient by means of the alimentary canal. It seems also to be admitted by general consent that insanitary conditions, such as an untrapped sink, or a leaky soil-pipe, or an offensive sewer, may in some not very clearly defined manner give rise to typhoid fever. In such instances the specific germ must, I presume, be assumed to enter the system by inhalation through the respiratory system. We may therefore conclude that the germ of typhoid fever more generally and more certainly finds entrance by the alimentary canal, thus resembling more in this particular the behaviour of the cholera germ than the germs of measles, whooping-cough, scarlet fever, and diphtheria, though it seems certain that the last two mentioned diseases may also be conveyed to the system through the alimentary canal by means of milk. On the other hand, ague and other malarial fevers gain access by inhalation under suitable surroundings of soil, climate, and temperature.

An outbreak of typhoid fever occurred in the borough of Grantham last year, the reasons for which I found it exceedingly difficult to explain from the more usually acknowledged causes. The circumstances of the outbreak were briefly these. There were in June 5 cases; in the first half of July, 10; in the second half of July, 5; in the first half of August, 10; in the second half of August, 8; in the first half of September, 20; in the second half of September, 11; and in the first half of October, 10; in all, 79 cases. So that it is evident that the outbreak commenced gradually in June, progressed irregularly, reached its maximum during the first half of September, and then continued with diminished virulence until it stopped suddenly in the middle of October. All the cases except four or five occurred in an area about a quarter of a mile across. The outbreak commenced in Vere-court and all along remained principally there and in New-street. All the houses in which the cases occurred were supplied by water from the Grantham Waterworks Company except in four instances, so that practically pump supply may be discarded as in any way seriously affecting the outbreak. The water from the pumps supplying these houses was examined and considered to be satisfactory. The Company's water from the infected area was submitted to chemical analysis by Dr. Ashby, the public analyst, and to

the Clinical Research Association for bacteriological examination. In each instance the result was eminently satisfactory. Further, every inquiry was made as to the source of the supply, and, moreover, Vere-court and New-street, which throughout were the main centres of the outbreak, are supplied from distinct and separate water mains. The milk supply was carefully inquired into, but it was found that the infected houses were supplied by a large number of separate dealers, and no suspicion of this article of consumption could be sustained. No other article of diet could, after careful inquiry, be assigned as a cause. It seemed improbable that the sewers were instrumental in the spread of the disease, as the New-street and Vere-court sewers have no direct communication, and there is no manhole in Vere-court at all, and, moreover, from the general arrangement of the sewers it was exceedingly difficult to conjecture any way in which they could have influenced the incidence of cases. Watercloseta, mostly outside, were the means of excrement disposal in all the affected houses, and the sinks were all effectively trapped, except in one insignificant instance at the bottom of a yard. What, then, could be the true cause of the outbreak?

In some instances possibly the fever spread by direct communication from person to person, for many of the people were poor, careless, and dirty; but this could not account for the majority of the cases. It seems evident that some local cause must have prevailed, causing the outbreak to be located in this comparatively small area—a cause affecting those who lived in this locality and not casual passers-by, a cause which spread gradually during five months and then stopped suddenly. My view as to this cause is expressed thus in the words of my annual report: "It will be remembered that in the middle of last year the weather was hot and particularly dry. The area of the locality in which the epidemic occurred was less than a quarter of a mile across, and its subsoil is light and sandy. The cases commenced in Vere-court, and these were shortly followed by others in New-street, and later there were cases in North-parade, Albion-place, Broad-street, Sydney-street, James-street, Chapel-street, Mount-street, Malt-hill, Alford-street, and Swinegate; whilst from beginning to end Vere-court and New-street remained the chief centres affected. It seems to me, regarding the history of the epidemic carefully, that the poison may not improbably have got into the superficial subsoil in Vere-court from a blocked closet in an early case, and that in this light and dry subsoil germ activity may have taken place, and thence the poison may have been carried, through the medium of subsoil air or of subsoil water, to the houses which became infected. It seems much easier to imagine that the poison might travel from Vere-court to Baker's-place by this route than that it should travel down the sewers in Vere-court, Vere-street, along Chapel-street, up Brownlow-street, and then up New-street and up to Baker's-place and the top of the east-end of New-street (for it will be remembered that there is no communication between the sewers in Vere-court and New-street along Broad-street); moreover, Vere-court is on high ground, and is, indeed, within a foot or so higher than the elevation of any of the other cases which occurred in the epidemic area. So that, regarding Vere-court as the starting place, it is not difficult to imagine that gravitation might reasonably account for the dissemination of the poison by either ground-air or ground-water. This hypothesis also harmonizes fairly well with the somewhat later appearance of the fever in North-parade, Albion-place, Sidney-street, Chapel-street, Mount-street, Alford-street, and Swinegate. Further, the sudden cessation of the epidemic, allowing for the incubation period of the disease, coincided exactly with the falling of cold rains, which would check fermentative germ-growth in the superficial subsoil. So that I even predicted, when the cold rain came on Oct. 2nd, that in about ten or twelve days the epidemic would cease. It will be remembered that the last case commenced on Oct. 15th. Further than this, diarrhœa of the ordinary summer type, which was very prevalent coincidently with the typhoid fever, ceased at the same time. This summer diarrhœa has of recent years been thought to be due to a high temperature at a four-foot depth, probably from germ growth in the superficial subsoil, and if the germs which are thought to cause the ordinary summer diarrhœa are held to be capable of growth in the superficial subsoil under certain conditions of high temperature, why should not the specific typhoid germs be capable of flourishing under similar conditions? It may be said that this is only a theory, and, moreover, one not generally held as accounting for typhoid fever, and I by no means wish to insist that this theory should be made to account for all the cases which may have occurred in the town, but after much careful and anxious thought it is the only one which to my mind at all satisfactorily explains the facts before me relating to this particular epidemic."

I have not seen this previously stated as a cause of an outbreak of typhoid fever. Pettenkofer and Buhl have traced a connexion between the movement of ground water and the occurrence of typhoid fever in Munich, and this has been confirmed by other observations in Germany; but it seems that their views have not been corroborated in England, and, moreover, the outbreak in Grantham does not seem to have been related to the well-water, for in the epidemic area there are several surface wells in use, the water from which apparently bore no particular influence upon the spread of the disease. Sir Charles Cameron has, if I remember rightly, alluded to the growth of typhoid germs in the soil around a leaking soil-pipe and to the spread of disease therefrom.

I have thought it right to bring this matter before the profession as, if my view be a correct one, it is possible that it may help to throw some light upon the origin of some cases of typhoid fever the cause of which may have been regarded as obscure. It may, of course, seem to some that from the brief account I have given my proposition remains merely problematical and certainly unproven; but to me, after careful observation and much consideration of the circumstances and the locality, my case seems as clear as the nature of the evidence before me admitted of its being. It seems to me, moreover, that the following conditions are required for the possibility of what I have suggested to take place. The soil must be light and loose and for the most part uncultivated, the season must be dry and hot, and the soil must be of the kind which is generally found in the courts and yards amongst closely populated districts, in which organic pollution is likely to exist to a not inconsiderable degree. I take it that this kind of superficial subsoil is markedly different in its capabilities from the superficial subsoil which exists where the land is cultivated. In the latter instance the vegetable growth is ever ready and able to take up and make use of any organic pollution, and thus specific disease germs may be safely disposed of, whereas in the former case the specific germs may find a suitable nidus, and colonies may possibly be successfully cultivated, just as they are upon the bacteriologist's prepared media. If there be any truth in this view, then it may be quite safe to bury typhoid excreta superficially in the mould of a garden, but the consequences might prove most disastrous if they were allowed to find access to a soil organically polluted and uncultivated.

Grantham.

A CASE OF RECURRING ECZEMA.

BY G. A. LEGGE, M.A., M.D.

AT the meeting of the British Medical Association in 1894 a paper was read on "Eczema," in which various points in the history and treatment of the disease were discussed. One in particular impressed itself on my mind—viz., the recurrent nature of the complaint in many cases. I read the paper with unusual interest because I myself had just gone through most persistently recurring attacks of the disease. I am a man of sound constitution and never ail as a rule, but I had been a victim to eczema in recurrent form for fourteen months. I wish to be brief, and shall not go into details of my case. I refrained from writing sooner because I was anxious to put to the proof a treatment just then adopted. My period of self-imposed probation seems now sufficiently long, and in view of an article in THE LANCET of Dec. 22nd, 1894, by Dr. J. K. Tomory, entitled "Ichthyol in Eczema," which drug has given him such successful results in an intractable case of this disease, my contemplated purpose has been brought to a focus.

The site or sites which my attacks specially affected

were just those parts of my body exposed to the air—viz., my hands and wrists, my face, ears, and neck. The attack was originally brought on in my hands by exposure to a cold wind in the winter here in 1893, but they kept recurring all through the following summer and winter of 1894, so that in all I had some eleven or twelve attacks. Most of these were very severe, my axillary glands on both sides being at that time swollen and painful. I had been in this colony for some twelve years before my first attack, and in similar circumstances often before to those in which I was seized, without suffering any harm; and why, at this time of day, I should have been laid hold of is more than I can guess, and raises a question which I will not now enter on however. I merely wish to say that, on my own responsibility and that of other medical men, I pretty well exhausted the Pharmacopœia in treatment, with both external and internal medicaments of all descriptions. But, at the end of it all, I found myself just as liable to a recurrence as if I had done or taken nothing. At last, in despair, I made up for myself the following: one drachm of iodide of potassium, twelve grains of sulphate of quinine, one drachm of diluted sulphuric acid, with water to six ounces, and took a tablespoonful three times a day after meals, with the result that I have not had another attack since. I took in immediate succession four such bottles; but long before I had finished I felt the benefit. On two subsequent occasions, within a couple of months, I took a few more doses, as I thought I perceived indications of an attack; but I have never had to finish a six-ounce mixture. In combination with this I found the best and (for me) the only thing externally was vaseline camphor ice. The particular preparation I used was made by the Cheseborough Manufacturing Company, and it seemed to contain a larger proportion of camphor than other similar preparations. There is in my mind no doubt that camphor, more than any other external application, had the power of relieving the maddening itching that always ushered in the attacks, and also of controlling them. I noticed, too, between my attacks (for I continued to rub my skin with the ice long after I had an attack) that its application always was followed by an exosmosis through a perfectly unbroken skin of beads of moisture, in appearance just as if I had been freely perspiring, so that I should say the camphor was curative as well as sedative. I do not know whether the ichthyol employed by Dr. Tomory was different from that used by myself, but he speaks of "camphoid" ichthyol, which I take to contain camphor. In that case, as my ichthyol did not in the least help me, I should consider it was the camphor in his ichthyol that was the beneficial ingredient, which would corroborate my own experience of the vaseline camphor ice. The difficulty in my case was not so much to heal the hands, &c., when they did break out as to prevent a recurrence of the attacks. Seeing that in fourteen months I had eleven or twelve attacks, and that when I put aside the routine practice of iron and arsenic and adopted iodide with camphor instead, for nearly six months I had no recurrence, I think I am entitled to look upon myself as cured, and that the cure is due to the use of those two substances. If my personal experience should prove of use to any brother practitioner in any intractable case he may have, and thus benefit both him professionally and suffering humanity, I shall think it truer than ever that it is an "ill wind that blows nobody any good."

Somerset East, South Africa.

SKIAGRAMS OF A CASE OF POLYDACTYLISM.

BY GEORGE MORGAN, F.R.C.S. EDIN.,
SENIOR SURGEON TO THE CHILDREN'S HOSPITAL, BRIGHTON.

THE patient is a girl aged three years. On each hand are five fingers and a thumb, and six toes on each foot. The other two members of the family, one older and the other younger, have no trace of such deformity, neither can it be traced in the family history of either parent. The supernumerary members, in the case of both hands and both feet, are as perfect in outline as the normal members. It is interesting to notice the bifurcation of the fifth metacarpal bone, especially of the left hand. My thanks

Left hand.

Right foot.

are due to Dr. A. J. Richardson of the Sussex County Hospital for the skiagrams.

Brighton.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

EXTRAORDINARY RETENTION OF A PESSARY.

BY H. WILLIAM GODFREY, M.B., C.M. ABERD., M.R.C.S. ENG.

THE following case was brought under my notice not long since. Considering the length of time the instrument had been worn uninterruptedly it seems to me to be worth putting on record.

I was called to attend a woman in the eighty-third year of her age, then suffering from an attack of influenza, from which, however, she made a complete recovery. Towards the end of her convalescence the nurse in charge informed me that the patient had a somewhat foul-smelling vaginal discharge and that there was a tendency to frequent micturition and action of the bowels. Having ordered a vaginal douche, the other symptoms being left alone temporarily, the patient then proceeded to inform me that she was wearing an instrument—for previous prolapsus uteri—that had been introduced by the late Dr. Paris when she was fifty years of age, and, further, that the instrument had never once been removed. The story seemed to me incredible at the time, as it appeared quite unusual that any instrument could be retained *in situ* for a period of thirty-three years and yet cause no trouble locally. Inconvenience there certainly was, which was probably increased of late by the cough following influenza. However, the patient still persisted and begged me to remove it, assuring me at the same time that an instrument had been inserted thirty-three years ago and that it now felt as if it would be expelled from the vagina as, using the patient's expression, "it seemed to come down." It was, therefore, my duty to make a per vaginam examination, and no sooner was the finger introduced than a hard body was met with. I then digitally explored for the purpose of its withdrawal. It felt like a piece of flat board, the rounded edges of which seemed deeply embedded in the anterior and posterior walls of the vagina. Passing my finger still higher I reached what I thought to be its upper limits. From lying across the vagina as it did the instrument, as it were, divided the cavity into an upper and a lower portion, and in that position it was fixed. By gentle traction I removed it, and it proved to be the old-fashioned circular wooden or disc pessary, two and a half inches in diameter. On examination I found that what corresponded with the anterior edge of the pessary when *in situ* was thickly coated for fully an inch and a half with a deposit of a chalky nature, while on the corresponding opposite edge was a similar deposition, though not nearly so marked. The odour from the long-retained "foreign body" was particularly unpleasant.

The authenticity of the dates can be vouched for, as the patient's memory was perfectly clear upon the point and, moreover, her daughter was able to corroborate her mother's version in every particular.

Ventnor, I. W.

A CASE OF NÆVUS OF THE OCULAR CONJUNCTIVA.

BY W. DEVEREUX, M.A., M.B. CANTAB., SURGEON TO THE TEWKESBURY HOSPITAL.

THE following case may prove of interest to the readers of THE LANCET on account of its rarity.

A patient consulted me in August, 1895, with reference to a growth on the conjunctiva close to the edge of the cornea. He first noticed it about sixteen years previously and consulted a surgeon, who treated it for some time with powdered alum, which was flicked into the eye, but with no apparent benefit. On examination I found a round nævus of the conjunctiva about the size of a small pea on the outer side of the cornea. It was quite sessile and did not involve the sclerotic at all. There was a broad leash of conjunctival vessels running up to the growth from the outer canthus. I prescribed collyrium zinci sulphatis (two grains to one ounce) and the nævus for a time decreased in size. In December the nævus began to increase again, having grown to the size of a large pea, and was beginning to involve the cornea, which showed signs of commencing interstitial keratitis at its outer edge. As the growth projected from the surface of the eye for about a quarter of an inch considerable hæmorrhage occasionally ensued when the patient closed his eye, and also when he went out in a high wind. The leash of vessels running to it had greatly increased in size. As the collyrium zinci sulphatis had been again tried without any benefit I determined to ligature the growth. The eye having been anæsthetised with cocaine, a few drops of atropine introduced, and the eye speculum inserted, the nævus was drawn away from the eye with a pair of fixation forceps. I then passed across the base of the growth a small straight Hagedorn's needle threaded with a No. 1 double silk ligature. While the needle was still in position across the base of the growth a second threaded needle was passed underneath and at right angles to it. This was drawn through and its loop of silk divided. The first needle having been drawn through its loop was also divided. My assistant then seized six of the ligature ends while I tied in a reef knot, the two ends left hanging out belonging respectively to the first and second loops. I then tied four other ends in a similar manner in each case, drawing the knot against the base of the tumour. The last two ends were then drawn on very tightly so as to bring the knots of the nooses towards the centre of the growth, and these were then firmly tied. The ends of the ligatures were cut off and the eye dressed with a pad of Gamgee tissue and bandaged. The tumour sloughed off in three days, the eye being kept under the influence of atropine for about a week. No conjunctivitis or pain followed the operation. Two months later there was only a slight scar where the nævus was situated, the keratitis had cleared up, and the leash of vessels had nearly disappeared. Ten months after the operation there had been no recurrence of the growth, and the scar was imperceptible.

Tewkesbury.

NOTE ON A CASE OF ACUTE GLAUCOMA IN WHICH SIGHT WAS RESTORED AFTER PROLONGED ABOLITION OF PERCEPTION OF LIGHT.

BY CHARLES BELL TAYLOR, M.D., F.R.C.S. EDIN., SURGEON TO THE NOTTINGHAM AND MIDLAND EYE INFIRMARY.

THE patient was a married woman aged sixty-seven years. Twelve years ago she was roused about three o'clock in the morning by a violent pain in the right eyeball accompanied by vomiting, great prostration, and loss of perception of light (glaucoma fulminans). A consulting surgeon was called in, some drops were used, and general directions were given, but no operation was suggested, and the patient went on from bad to worse until the eye was completely lost (glaucoma absolutum consummatum). Three months ago the left eye was attacked during sleep, with precisely the same symptoms—pain, vomiting, prostration, and loss of perception of light. Notwithstanding her bitter experience with the right eye similar treatment was adopted for the left, and it was not until three weeks had elapsed that I was called in. I then found the eyeball stony hard, the cornea steamy, the iris muddy, the pupil dilated to a rim, and the patient profoundly insensible to the most brilliant light. I immediately excised a large piece of iris (about a fourth), taking care to establish a filtrating cicatrix, an operation which was exceedingly difficult (as all who have had experience will understand);[1] but on its completion the painful symptoms ceased as if by magic, and sight was gradually restored, so that she can now with a little trouble read newspaper type, without glasses

[1] "The anterior chamber has to be entered at its extreme rim, where the sclerotica overlaps the cornea close in front of the iris, which often bulges much and which must on no account be pricked lest the vitreous humour or lens immediately behind should be wounded, in either case a most serious complication. The bulging of the lens and the dilatation of the pupil add to the risk of injury to the lens; a little blood, too, escaping into the anterior chamber, either before or after the excision of the iris, may obscure the parts from view and add to the chance of involving the vitreous humour or lens."—Bowman: Selected Papers, p. 287.

distinguish letters an inch long at twenty feet, go about by herself, and manage her own affairs.

Remarks.—The late Sir William Bowman did not counsel operation with any hope of restoring sight in cases of acute glaucoma when perception of light had been lost even for a brief period.[2] Mr. Brudenell Carter says we must no longer measure the available time (for operation) by days but by hours.[3] Indeed, all authorities, including myself, have insisted upon the importance of early operation. It is true that Mr. Bader gives a week as the outside limit for beneficial action so far as sight is concerned after loss of perception of light in cases of acute glaucoma,[4] but in the case I have recorded (and therefore it is noteworthy) black darkness had reigned supreme for three weeks ere the chain of symptoms was broken by iridectomy and sight restored to the patient.

Nottingham.

"'INSUSCEPTIBILITY' TO VACCINATION."

BY E. F. ROBINSON, M.D. EDIN.

WITH regard to the annotation under the above heading[5] may I relate a curious experience and one which has puzzled me not a little?

On April 12th, 1894, I vaccinated a fine, well-grown female child three months of age on the left arm in the usual area with calf lymph newly obtained from a registered source. The operation was unsuccessful. On May 1st I re-vaccinated the same arm with a fresh supply, which operation was again unsuccessful. On July 2nd I again vaccinated the same arm with more fresh lymph from the same source, and again unsuccessfully. On July 9th I re-vaccinated with another tube of the same last supply on the *right arm* in the usual area, and it took splendidly and ran a favourable course. The father, a well-educated, scientific man, told me over and over again that it was useless to attempt to succeed, as his children were insusceptible to vaccination, and that one of them (who had recently died from broncho-pneumonia) had, when he resided elsewhere some years previously, been vaccinated and re-vaccinated six times unsuccessfully; he, however, sensibly, but with some amused scorn, allowed me to proceed. I cannot offer any explanation why the same vaccine should have taken in the one arm and not in the other, but would like to know whether others have had the like curious experience. I used the same method of vaccination each time—by incision with a clean lancet.

The remaining tubes of each separate supply of vaccine were used to vaccinate other children, and none were inert.

Frensham.

[2] Loc. cit., p. 297.
[3] Carter: Diseases of the Eye, p. 418.
[4] Bader: The Human Eye, p. 405.
[5] THE LANCET, Nov. 14th, 1896.

VACANCY FOR A BACTERIOLOGIST.—We understand that the Linnean Society of New South Wales is inviting applications for the appointment of Macleay bacteriologist to the society. All particulars may be ascertained from Messrs. Dulau and Co., 37, Soho-square, London. The salary is £350 per annum. Applications must be forwarded by the mail leaving London not later than Dec. 11th.

THE ROYAL ALBERT ASYLUM, LANCASTER.—At the meeting of the central committee on Nov. 27th, the Right Hon. Sir John T. Hibbert, chairman, presiding, Sir Thomas Storey of Lancaster offered to build on the asylum estate a home for forty feeble-minded girls who have been trained in the institution and who will be occupied in its domestic and nursing service. On the motion of the chairman, seconded by Alderman the Rev. C. Twemlow Royds, chairman of the Lancashire Asylums Board, and supported by Mr. James Cropper, chairman of the Westmorland County Council, Sir Thomas Storey's generous offer was gratefully accepted, and it was unanimously agreed to call the home "The Storey Home for Feeble-minded Girls in connexion with the Royal Albert Asylum." A few years ago Sir Thomas Storey presented to the town of Lancaster a handsome and well-equipped building as an institute for instruction in art, science, and literature.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

NORTH-WEST LONDON HOSPITAL.

A CASE OF STRANGULATED CONGENITAL CÆCAL HERNIA; REDUCTION; RADICAL OPERATION; RECOVERY.

(Under the care of Mr. MAYO COLLIER.)

ALTHOUGH cæcal hernia is not very commonly met with its occurrence is well recognised and has received a good deal of attention during the last few years. Of the various references to this hernia which have appeared one of the most important is the paper by Dr. Hildebrand,[1] who collected 128 cases. The great majority were right inguinal and about one quarter as many left inguinal; the numbers of the right femoral, umbilical, and ventral are about equal, and one was Ischiatic. Dr. Hildebrand considered that cæcal hernia could hardly occur save under abnormal conditions, which might be either congenital or acquired. Thus there might be persistence of the fœtal state of the gut; anomalies of its attachment, such as a long mesentery or ligament; adhesions to other organs, as the testis, &c. Of acquired abnormalities there might be inflammatory swellings or adhesions to the testis or to other organs; the peritoneum might draw the gut downward. Duret[2] considers the most suitable operation is hernio-laparotomy. We are without information as to the duration of the hernia or of the symptoms of strangulation in this case.

A man aged thirty-nine years was admitted into the North-West London Hospital towards the end of September suffering from what was evidently a strangulated inguinal hernia on the right side. The tumour was unusually large and presented a deep sulcus in the site of the external abdominal ring. Mr. Mayo Collier proceeded to operate in the usual way, having the advantage of the assistance of his colleague Mr. Jackson Clarke. On opening the sac the caput cæcum coli presented itself, the appendix, ileo-cæcal valve, and some inches of ileum being also in the sac. The cæcum was attached firmly to the posterior and upper aspect of the sac by a short but broad mesentery. The testis lay below in the posterior wall of the sac. To have left the caput cæcum coli, the ileo-cæcal valve, the appendix, and several inches of the ileum hanging out of the abdomen was certainly not calculated to increase the patient's personal comfort or prospects of life, so Mr. Mayo Collier decided to reduce the contents of the sac and to close the opening in the abdomen by a modified Bassini's or Halstead's operation. To effect this the sac was separated from the tissues of the scrotum between the mesentery of the cæcum and the upper portion of the testis. The sac being separated was divided into two, the lower part being retained and shut off to form a tunica vaginalis for the testis and the upper part with the mesentery tilted up and pushed back into the abdominal cavity. There was no difficulty in separating the cut margin of the sac from the tissues of the inguinal and abdominal opening. The peritoneum now having been carefully closed by interrupted catgut sutures, the cord was separated and held aside on the upper and outer angle of the exposed inguinal canal. The conjoined tendon and internal oblique muscles were next sewn to the inner half of Poupart's ligament, and lastly, still leaving the cord in the upper and outer extremity of the canal, the external oblique muscle and pillars of the ring were closed, leaving the cord outside the three abdominal muscles. This operation was followed and rewarded by a complete and uninterrupted convalescence, the man now being able to walk about in comfort without a truss and to follow his ordinary occupation.

Remarks by Mr. MAYO COLLIER.—It is stated on the best

[1] Sajous: Annual of the Universal Medical Sciences, vol. iii., 1893, C87 (Schmidt's Jahrbücher, Leipzig, July, 1892).
[2] Sajous: Annual of the Universal Medical Sciences (Journal des Sciences Médicales, Lille, 1892).

authority and laid down in the modern text-books of surgery that a congenital cæcal hernia with an incomplete sac is irreducible. By an incomplete sac is meant that the cæcum is attached by its mesentery to the posterior aspect or wall of the hernial sac. The anatomical arrangements of the parts is as follows. The sac of the hernia is the open processus vaginalis of the peritoneum that originally descends with, and in front of, the testis. This sac under ordinary circumstances forms the tunica vaginalis of the testis, and becomes obliterated and shut off from the peritoneal cavity by closure of that portion within the inguinal canal. In a congenital cæcal hernia the caput cæcum coli lies within this sac firmly fixed to the posterior aspect of the sac by its mesentery. The testis is below in the posterior wall of the sac. The above case illustrates that by a simple procedure the cæcum and other contents of the hernial sac can be reduced and restored to the abdominal cavity and the ordinary anatomical conditions maintained. On Nov. 6th the patient was seen by the members of the West Kent Medico-Chirurgical Society and the condition of the parts was all that could be desired.

ROYAL INFIRMARY, NEWCASTLE-ON-TYNE.

FOUR CASES OF GALL-STONES.

(Under the care of Mr. FREDERICK PAGE.)

THESE examples of successful operations for gallstones are of great interest, as they show the results which may be attained after incision and closure of the wounds made for the removal of stones without the employment of drainage. This method of treatment is one which does not commend itself to all surgeons with regard to the question of drainage after removal of a stone by choledochotomy. Mr Greig Smith[1] writes that after the incision has been closed with sutures "drainage is always advisable." Again,[2] on the subject of closure of the gall-bladder after removal of stones he writes: "The plan of complete intra-peritoneal closure of the opening in the gall-bladder may be dismissed in a word. These cases[3] proved that intra-peritoneal closure may be successful, and some surgeons continue to favour this proceeding, calling it by a somewhat gratuitous assumption of excellence 'the ideal operation.' It is not ideal in the sense of saving life; the total mortality is increased by 2 per cent. by this proceeding alone." For the notes of the cases we are indebted to Mr. W. H. Vickery, surgical registrar.

CASE 1.—A man aged forty-seven years was admitted on Aug. 31st, 1896. Twenty-two years previously he had had biliary colic and passed two gall-stones. From that time he remained well until about a year ago, when he began to feel poorly, but with no definite symptoms. He, however, gradually began to lose weight and strength. Six months ago he was suddenly taken with severe biliary colic, similar to the first attack. Since then he had had recurrent attacks. Sometimes he was free a week or longer, but never free more than a fortnight. The attacks were severe and lasted from six to ten hours. There was no jaundice. On examination he was found to be a spare man with reddish complexion; the skin was not jaundiced. There was a good deal of tenderness about the upper segment of the right rectus abdominis, but nothing definite could be made out. An operation was performed, ether being administered. On opening the abdomen a stone was found in the cystic duct; it was cut down upon and removed, the wound in the duct being sutured. The abdominal wound was closed without drainage.

CASE 2.—A woman aged thirty-two years was admitted on Sept. 1st, 1896. She had suffered at times from sharp abdominal pains, but they were never severe enough to trouble her much until six days before admission, when she was suddenly attacked with a severe paroxysm. The pain was over the region of the gall-bladder and lasted some minutes, during which it was very intense. She perspired freely and vomited bile-stained fluid. Since then the attacks had recurred daily and had been similar in character. She stated that she had been jaundiced, but was not so at the time. On examination she was found to be a dark, healthy-looking woman. There was a sausage-shaped swelling in the right hypochondriac region, stretching downwards from the ninth costo-chondral articulation. It was felt to be dougly and very tender. It could be moved slightly from side to side. The patient stated that she could at times feel the stones in this swelling. In the epigastrium there appeared to be some thickening with communicated pulsation from the aorta. An operation was performed, ether being administered. The swelling was cut down upon and found to be distended gall-bladder. It was incised and fifty-six stones were removed. The wound in the bladder was sutured and the abdominal wound closed without drainage. The temperature never rose above 99·6° F.

CASE 3.—A married woman, who was both deaf and dumb, was admitted to the infirmary in July, 1896, and the following history was obtained from her friends. She had had three or four attacks of severe abdominal pain at different times; the last just before admission. On examination she was found to be jaundiced. The liver was enlarged, the lower border being well below the costal arch. From the lower edge a much distended gall-bladder could be distinctly felt. An operation was performed, ether being administered. The gall bladder was cut down upon and opened. Two small stones were found and removed. A large stone was then felt in the common duct. This was cut down upon and also removed. Both wounds were sutured and the abdomen closed without drainage.

CASE 4.—This patient was a woman aged forty-five years. In May, 1895, she was seized with a peculiar feeling as if there was something alive in her abdomen moving about. It made her quite sick and faint. At Whitsuntide she was seized with acute biliary colic lasting off and on for a fortnight. She was not jaundiced. In June she had a second attack lasting longer and then she became deeply jaundiced. She kept fairly free until January, 1896, when she had another severe attack followed by jaundice. A further attack came on in June and after that she was admitted. An operation was performed, ether being administered. On opening the abdomen a single stone was found in the common duct. It was cut down upon and removed, the wound was sutured, and the abdominal wound closed without drainage.

Remarks by Mr. PAGE.—All the four patients made uninterrupted recoveries. In each case the abdomen was opened by a vertical incision in the right semi-lunar line. Whether any bile escaped through the sutured wounds of the gall-bladder and ducts or not I am unable to say. Probably there would be some, but certainly no evil resulted from not draining the peritoneal cavity. In two other instances I incised—once the common duct and once the cystic duct, removing a moderate-sized stone from the latter and a very large stone indeed from the former duct,—left the incisions unsutured, and drained the abdomen through the loin, but no quantity of bile escaped in either case and the drainage-tube was removed in thirty-six hours. Both these patients did well, and I cannot help thinking the danger of bile escaping in large quantity into the abdominal cavity after incision of the duct—even if left unsutured—is not so great or of so much consequence if it occur as is generally believed. Suturing the wounds in the gall-bladder or ducts and closing the abdomen without drainage is a perfect operation which can generally be safely performed.

[1] Greig Smith: Abdominal Surgery, 5th edition, vol. ii., p. 1027.
[2] Ibid., vol. ii., p. 1014.
[3] Bobbs and Gross: loc. cit.

THE NORTH-WEST LONDON CLINICAL SOCIETY.—A clinical meeting was held on Nov. 18th, Mr. F. Durham being in the chair.—The Chairman showed a case of Fracture of the Patella treated by back-splint and strapping. The result was all that could be desired.—Dr. Cagney showed a boy aged seventeen years who exhibited remarkable Deformities consequent on Acute Rheumatism.—Dr. Templeton showed a healthy boy who had two separate penes, both of which showed complete hypospadias. Though the symphysis pubis was normal, urine dribbled from a cleft beneath the pubic arch. The ureters were seen to open close behind this orifice. The testes had descended and were contained in folds of skin at the sides of the cleft.—Dr. Sibley showed a boy aged thirteen years convalescent from Chorea, Rheumatism, Endocarditis, and Pericarditis.—Mr. Mayo Collier showed (1) a patient with the results of a Radical Operation for Strangulated Cæcal Hernia; (2) a case of Goitre where improvement had been obtained by operation for the removal of adenomata; and (3) a case of Double Anterior Nasal Obstruction.—Mr. Jackson Clarke showed a girl aged nine years with Symmetrical Mucous Tubercles of the Tongue and other Syphilitic Phenomena.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Swine Fever.—Mediastinal Tumour arising from the Thymus Gland.—Hydronephrosis in an Infant due to a Pelvic Cyst.—Hernia of the Vermiform Appendix.—Exhibition of Specimens.

A MEETING of this society was held on Dec. 1st, Mr. H. T. BUTLIN, the President, being in the chair.

Professor MCFADYEAN, in his paper on Swine Fever, said the organism which is the cause of this fever is a small bacillus which in point of size and form closely resembles the bacillus of glanders. In natural cases of the disease it appears to be constantly present in the large intestine and in the mesenteric glands; in very acute cases it is also present in the blood in small numbers, though it is seldom or never demonstrable in that fluid by microscopic examination. The bacillus is motile and aerobic. It can be cultivated in most of the ordinary artificial media, though its growth is very meagre in gelatin. It does not form a visible growth on potato. Its most characteristic mode of growth is exhibited in gelatin-agar, in which its colonies have a very distinctive cloudy aspect. Its growth is very slow at ordinary summer temperatures, and best at, or near, the body temperature. In artificial cultures the bacillus is promptly destroyed by desiccation; it is also destroyed by a ten minutes' exposure to a temperature of 58° C. There is every reason to regard the organism as an obligatory and not a facultative parasite. The common method of infection in natural cases of swine fever appears to be the ingestion of bacilli voided with the fæces of animals previously attacked. In very acute cases dying within two or three days after infection the only lesions discoverable at the necropsy may be an intense gastritis and enteritis without anything to distinguish these lesions from those produced by a purely chemical irritant. In the great majority of cases, however, the lesions are very distinctive, and the cæcum and colon are the most constant seat of them. The commonest form of the intestinal lesion is a well-defined circular necrosis involving the whole thickness of the mucous membrane and sometimes extending deeper into the wall of the bowel. Next to this in frequency comes a diffuse diphtheritic lesion; this is, in reality, a superficial necrosis with a deposition of a thin layer of fibrinous exudate on the surface. All gradations are to be found between the well-defined circular necrosis and the diffuse diphtheritic lesion. Either form of the lesion may end in complete recovery; if the pig survives after the detachment of the circular slough the ulcer generally heals up and leaves a smooth, depressed cicatrix. In very chronic cases the necrotic piece of mucous membrane sometimes remains in position, while a re-active inflammation at its base leads to the production of a projecting, tumour-like structure. In a considerable proportion of cases the small intestine is also the seat of lesions, which here again take the form of either a diffuse diphtheritic inflammation or of well-defined circular necroses, which promptly become converted into small circular ulcers. In comparatively rare cases necrotic lesions are found on the tongue or tonsils, or in the liver or spleen or mesenteric lymphatic glands. Contrary to what has been stated, pneumonic lesions are found in only a very small proportion of cases of swine fever, and in most, if not all, cases complicated with pneumonia the organism which is responsible for the lung lesion is not the swine fever bacillus. In artificial culture the virulence of the organism is retained through many successive generations. Pigs may with great certainty be infected by feeding even with moderate quantities of the swine fever bacillus in culture, and the lesions thus produced are identical with those which follow infection with such materials as ulcerated swine fever bowel. Cultures on slanting agar were shown which were made on the previous day from a pig killed five days after infection with 40 c.c. of a bouillon culture which was the fourteenth generation from the mesenteric gland of a pig. Pieces of the large intestine of this pig showing the characteristic lesions were also exhibited. By the aid of the lantern a large number of photographs were shown illustrating the morphology of the organism and the nature of the lesions in the large and small intestine, stomach, tongue, and liver. With regard to the possible transmission of the disease to the human subject it was said on *a priori* grounds that this appeared highly improbable. During the last ten years about 300,000 pigs had been killed in this country suffering from swine fever, and with such abundant opportunities for infection it seems highly probable that many cases of transmission to the human subject must have occurred had that been possible. The disease has never been observed to spread to other domestic animals, although the opportunity for it to do so was very frequently present. It appeared probable that the so-called ulcerative colitis of the human subject was in no way causally related to swine fever, though the possibility of such a connexion had been suggested. It was desirable that the matter should be settled by experiment, and that might be easily done by feeding pigs with ulcerated colon from the human subject, as feeding with ulcerated colon was a very certain method of transmitting the disease from pig to pig.—Dr. ROLLESTON said he had seen the specimens shown by Mr. Hudson at this society and at that time it was suggested that ulcerative colitis might be the representative of swine fever in the human subject. He considered there was no anatomical resemblance between the two conditions—(1) because necrosis which seems almost constantly to attend swine fever is seldom found in ulcerative colitis; (2) because perforation is a frequent occurrence in colitis and a rare occurrence in swine fever; and (3) because in swine fever the small intestine is frequently affected, whereas in colitis the colon is most affected.—Dr. KANTHACK said he had examined ulcerative colitis bacteriologically, but he had been unable to find any bacillus similar to that of swine fever. He did not agree with Dr. Rolleston in regarding perforation in ulcerative colitis as common, and thought that if the disease were studied in lunatic asylums, where it was not uncommon, it would be found that perforation was an unusual termination. He had seen necrosis in ulcerative colitis and did not consider it rare.

Dr. ROLLESTON showed a Mediastimal Tumour (due to hyperplasia of a persistent thymus gland) which, together with the trachea and œsophagus, weighed 11 oz. It was taken from the body of a boy aged six years, a patient of Dr. H. A. Des Vœux. It had given rise to remarkably few symptoms during life, slight stridor, cough, and shortly before death some cyanosis. Death was sudden and due to cardiac failure. Microscopically the tumour was apparently derived by hyperplasia from the lymphoid elements of the thymus gland and did not appear to be a sarcoma. There was compression, but no invasion of the adjacent parts. The glands elsewhere were healthy and there were no other growths in the body. The cause of the hyperplasia was not forthcoming. The chief points of interest were: (1) the nature of the tumour; (2) the large size of the growth; (3) the marked latency of the symptoms; and (4) the cause and manner of death.—Mr. BUTLIN said he had seen the child from whom the specimen was taken in May, 1896, and at that time there were signs of pressure on the trachea. The veins in the neck were swollen and he thought the lymphatic glands within the thorax must be enlarged. Some small lymphatic glands were found at the side of the neck, and he thought the condition was probably lymphadenoma. He was unable to obtain a satisfactory view of the larynx. He advised that tracheotomy should be performed and a long tube inserted. Death took place suddenly a few days later without any operation having been performed and seemed to be due to cardiac failure. On referring to the literature of the subject he found that Professor Rehn had described a case with obstruction of the same kind, in which he diagnosed an enlarged thymus gland. He made an incision over the front of the thorax, drew the gland forward, and fixed it in front of the sternum.

Dr. R. P. COCKBURN described a case of Cystic Tumour in the Pelvis of a Female Infant aged five weeks. The tumour was composed of a number of cysts varying in size from that of an orange to that of a pin's head. It sprang apparently from the tissues in front of the sacrum and occupied almost the whole pelvis; one cyst contained three ounces of brownish, albuminous fluid, faintly acid; the specific gravity was 1005; there were no urea and no hooklets. The others contained glairy mucus. The bladder reached up to the liver; about its centre it was connected to the umbilicus by a urachus not more than one-eighth of an inch in length. The urethra was two inches long. Probably the bladder had been formed too high up the stalk of the allantois and the long urethra was the natural length of the remainder of the allantois.

The kidneys were markedly hydronephrotic. The heart had a patent foramen ovale. Microscopically the cyst walls were composed chiefly of fibrous tissue, the cysts being lined by ciliated columnar epithelium. — Mr. A. A. BOWLBY said that he thought this cyst probably arose in connexion with the neurenteric canals. The structure of these growths varied considerably, some being composed of neuroglia; others had been described as resembling thyroid gland tissue. He had seen one such cyst in a child which was palpable by the rectum and bulged by the side of the anus. As the child grew the cyst became relatively smaller and gave rise to less trouble. He did not think that operation could be undertaken with any reasonable hope of success.

Mr. MCADAM ECCLES showed a specimen of Hernia of the Vermiform Appendix. It was a right femoral sac from a male subject and contained the appendix alone. This was five inches in length, and the last inch was within the hernial protrusion and adherent and somewhat dilated. He remarked on the comparative rarity of hernia of the appendix by itself and on the frequency of adhesion of the organ to the sac wall, and gave it as his opinion that this was the outcome of appendicitis. He further thought that many cases of so-called strangulation of the appendix were in reality an inflammation of the tube precisely similar to that arising within the abdomen. He further alluded to the question as to whether the appendix could form a sac for itself or must needs have a sac pre-formed congenitally or by other viscera.

The following card specimens were shown:—

Dr. A. A. KANTHACK showed specimens of Colloid Cancer in which the cellular structure had disappeared, the network only remaining, and this stained well with Weigert's fibrine method.

Dr. ROLLESTON showed a Tumour of the Anterior Mediastinum from a boy aged seventeen years.

CLINICAL SOCIETY OF LONDON.

A Case of Myxœdema treated by Thyroid Extract.—A Case of Perforation of the Floor of the Acetabulum by the Head of the Femur.—A Case of Dystrophy of the Nails.—A Case of Spontaneous Disappearance of Secondary Cancerous Growth.—A Case of Suture of Ruptured Ligamentum Patellæ.—A Case of Splenic Anæmia in a Boy.—A Patient who has worn a Tracheotomy Tube for Twenty-three Years.—A Case of Multiple Fibromata.—Demonstration of the Outline of the Heart by Roentgen Rays.

A MEETING of this society was held on Nov. 27th, the President, Dr. BUZZARD, being in the chair.

Dr. A. T. DAVIES showed a case of Myxœdema which had been under treatment for five years. The case was that of a man who was first shown at the Clinical Society in 1887, and was reported in the Transactions of that year. In 1892 he was again shown at the society, having been under treatment for three and a half months by subcutaneous injections of thyroid extract; he had improved to a marked degree. He was now again shown, having remained quite well and free from any myxœdema since he was first treated with the extract. At the present time he takes one or two tabloids twice a week.—Dr. SEYMOUR TAYLOR said that in the first case which was examined post mortem by Dr. Ord a large amount of mucin was found in the subcutaneous tissues, but that in the more recent cases a great excess of mucin had not been found, except possibly in the cases produced experimentally by Horsley. He suggested that myxœdema was hardly a suitable name and that these cases should be called Ord's disease.

Mr. R. T. GODLEE showed a case of Perforation of the Floor of the Acetabulum by the Head of the Femur in a man who in April last fell twelve feet, striking the left great trochanter. The patient appeared to have about two inches shortening, but on measuring the leg it was found to be the same as the right, the apparent shortening being due to the tilting of the pelvis, the leg being adducted. The nutrition of the limb was well maintained. A mass could be felt above Poupart's ligament and the same could be felt from the rectum. The patient had pain in the limb both in the distribution of the anterior crural and sciatic, which usually came on after walking a short distance. Mr. Godlee asked what treatment should be adopted for the relief of the patient.—Mr. GOLDING-BIRD said that if the shortening were only apparent then it must be due to the adducted position of the leg. This he thought should be corrected and the leg put up in the abducted position.—Mr. BOWLBY suggested that an osteotomy should be performed below the trochanter, just as might be done in a child with ankylosis of the hip in a similar position.

Dr. FLETCHER LITTLE showed a case of Dystrophy of the Finger nails in a woman who had first come under observation ten months previously. All the nails of the right hand were affected and the thumb, first, and third fingers of the left hand. Some of the toe-nails were also affected.—Dr. SAVILL thought the disease corresponded to psoriasis, but there was no psoriasis about the body. He pointed out that the disease affected the distal half of the nail and not the bed. He suggested that the part affected below the nail should be cleared out and carbolic acid applied.

Mr. PEARCE GOULD showed a case of Spontaneous Disappearance of Secondary Cancerous Growth in a woman aged forty-four years. In 1885 she had a blow on the left breast, which was followed by some tenderness, in 1888 she first noticed a small lump in the breast, and in 1890 she was admitted to the Temperance Hospital, where the breast was removed. In 1892 there was a recurrence of the growth and a second operation was performed. In 1894 a further recurrence occurred and a third operation was performed. In December, 1894, there was again recurrence in the scar; there was some difficulty in breathing, and it was considered inadvisable to perform any further operation as the growth had probably become disseminated, and in 1895 she was admitted to the Cancer Ward of the Middlesex Hospital. Up to this time she had been under the care of Mr. W. T. Collins. The case was first seen by Mr. Pearce Gould in March, 1896. The patient then was sitting up in bed, much distressed, with frequent spasmodic cough, and abundant expectoration and some blood. There were numerous scattered hard nodules round the scar, and considerable glandular enlargement both in the left axilla and above the left clavicle. The right side of the chest was dull to the spine of the scapula; there was pain in the left thigh, and some enlargement of the bone below the trochanter. She was not seen again till June 15th, 1896, when she was very much improved; the nodules round the scar had disappeared, the glands in the axilla had become very much smaller, and the patient could lie comfortably in bed. The swelling in the thigh diminished and the patient could walk fairly well, but with a limp. The growth was said to have been microscopically examined and to have been a typical scirrhus, but unfortunately the specimen had not been preserved.—Mr. W. T. COLLINS said the case had been under his care for some time, and the growth had been examined and had been recorded as presenting the ordinary appearance of scirrhous cancer. He thought that as long as the pathology of cancer remained doubtful one should be guarded in the prognosis which was given in such cases.—Mr. BOWLBY said that independently of the microscopical examination he should regard the case as one of malignant disease in which involution had taken place. He had seen a patient who some months previously had had the breast removed for scirrhus by Mr. Willett. She had three small lumps in the breast; these were removed and appeared to be scirrhus. The wound healed, but further nodules appeared in the scar, some of which broke down, leaving an open wound. The patient wasted, became jaundiced, with an enlargement of the liver, and steadily lost ground till about four months ago, when the nodules in the scar began to disappear, the liver became smaller, the jaundice disappeared, and the patient put on flesh. Sufficient time has not yet elapsed to make any definite statement with regard to the future of this case.—Dr. SAVILL asked if the growth was primary in the skin, because it was well known that sarcoma of the skin underwent involution. He said that Dr. Stephen Mackenzie had reported a case in which the skin of both feet was involved; one foot was amputated and the growths in the other underwent involution. Another case was reported by Dr. Crocker in which numerous nodules of sarcoma scattered over the skin underwent involution. This patient was given iodide of potassium.—Mr. GOLDING-BIRD said that he had removed a testicle for a giant-celled sarcoma. The growth recurred in the stump and fungated, the skin around becoming infiltrated. Large doses of arsenic were given and the whole mass underwent involution.—Mr. MAKINS said that there was no doubt that sarcoma does sometimes disappear. He had seen a patient with a tumour of some months' standing

in the left side of the pelvis; the tumour gradually disappeared. He related a similar instance where the growth occurred in the jaw.—Mr. PEARCE GOULD said that it was an interesting point in his case that menstruation ceased fourteen days after admission to the Cancer Ward at Middlesex Hospital.

Mr. BOWLBY showed for Mr. MARSH a case of Suture of Ruptured Ligamentum Patellæ in a man aged thirty-two years who fell off the kerb. It was found on admission that there was displacement of the patella upward for nearly three inches. The leg was put up in a back splint for a week, after which time the ligament was cut down upon. Blood was found in the joint and the ligament itself torn into several shreds. These shreds of ligament were sutured in four or five places and the leg put up in a splint for ten weeks. He can now walk well, can bend the knee at right angles, but still wears some support.

Dr. WALTER CARR showed a boy aged ten years suffering from Splenic Anæmia. No definite history was obtainable, but he was said always to have been delicate, pale, and short of breath. There was no evidence of malaria; congenital syphilis could not be excluded, and the chest and skull showed marked signs of old rickets. On admission to hospital in August, 1896, the blood contained about 50 per cent. of red corpuscles, which formed very imperfect rouleaux, 20 per cent. of hæmoglobin, and no excess of white corpuscles; no abnormal corpuscles were seen. The boy was very thin, pale, and of a yellowish tinge; the spleen reached about three inches below the ribs; the liver was somewhat enlarged; there was no enlargement of the lymphatic glands. There was a systolic murmur over the aortic area, but the heart was not enlarged. The urine was normal. During the last three months there had been 10 hæmorrhages, but the temperature had been slightly raised, reaching 100° F. most days and sometimes 101°. Under treatment with increasing doses of iron and arsenic the condition of the blood had slightly improved. It seemed likely that the case was one of splenic anæmia arising in infancy, in association, as is usual, with rickets and perhaps with congenital syphilis also, and remaining persistent.—Dr. A. T. DAVIES said that he had tried bone marrow in two cases with marked success.

Dr. FLETCHER LITTLE showed a patient who had worn a Tracheotomy Tube for twenty-three years; she was fifty-eight years old, and the tube has given rise to no trouble, and she has remained in good health.

Mr. R. H. TOWNEND showed for Mr. T. H. OPENSHAW a man with Multiple Fibromata of the Skin. In September last the patient began to have tingling in the hand; in October a tumour appeared on the nose; and in November, when he came under observation, he was unable to use the hands for more than a few minutes at a time. There was a swollen condition of the hands, but this did not pit on pressure. Two tumours were found at the back of the head; there were nodules in the arms and over both ankles.—The PRESIDENT commented on the symmetry of the disease and said that this would seem to point to the disease not being syphilitic in origin. The implication of the nerves of the upper extremity would seem to point to the condition being one of fibro-neuroma, as described by Pierre Marie.—Dr. TURNEY said that twelve months ago he had seen a similar condition in a man with œdema about the eyelids and limbs, which did not pit on pressure. Some lumps were found closely connected with the bone on the forehead and some on the forearm beneath the skin; the lumps were free from any tenderness on pressure. There were numbness and tingling of the fingers.

Dr. H. CAMPBELL THOMSON gave a demonstration of the Outline of the Heart by the Roentgen Rays.

HUNTERIAN SOCIETY.

Treatment of Chronic Bronchitis.—The Value of a Coroner's Inquest.

AN ordinary meeting of this society was held at the London Institution on Nov. 25th, the President, Dr. HERMAN, being in the chair.

Dr. ARTHUR DAVIES read a paper on the Treatment of Chronic Bronchitis. He alluded to the many drugs which had been employed in the treatment of this disease, but he now emphasised the value of the spray method. This was carried out by frequent administrations of ipecacuanha wine, three to four times a day. At each sitting from half a drachm to one drachm of the drug was used, but the patient was directed not to swallow the wine. Successful cases were quoted. These showed relief from difficulty of breathing and lessening of the expectoration. The disadvantages of the inhalations were that sometimes vomiting followed and if the drug were used pure spasmodic dyspnœa would sometimes come on, and it was not suited for cases of asthma. Dr. Davies had tried a spray of potassium iodide with encouraging results. The class of cases suitable for treatment with the ipecacuanha spray were early cases with much dyspnœa and tenacious sputa. He had also found much help from the administration of trinitrine, the dyspnœa especially being relieved. When the dyspnœa was moderate tar in various forms was found useful. Terebene also fell in the same category. When fœtid bronchitis and bronchiectasis were present inhalations of creasote, as pointed out by Dr. Chaplin last year, had been found efficacious.—Dr. F. J. SMITH asked Dr. Davies for information on the class of cases known as bronchitic asthma. The speaker also inquired if Dr. Davies was satisfied as to the value of ipecacuanha when swallowed as an expectorant.—Dr. GLOVER LYON was surprised to find that Dr. Davies had not alluded to the value of ammonium carbonate and of cod-liver oil. The use of oxygen in cases of bronchitic emphysema and advanced dyspnœa was alluded to.—The PRESIDENT remarked that the point of Dr. Davies' paper lay in the fact that the dyspnœa of bronchitis was relieved by inhalations of ipecacuanha wine.—Dr. HINGSTON FOX alluded to remedies other than those which Dr. Davies mentioned, especially the external application of turpentine.—Mr. COTMAN also spoke of the value of ammonium carbonate and said he was accustomed to give it in the form of the ammoniated tincture of iron and quinine.—Dr. RAWES spoke of the value of limiting the ingestion of fluids in preventing the advent of dyspnœa in chronic bronchitis.—Dr. DAVIES, in reply, stated that he had found ipecacuanha given in the ordinary way—viz., by the mouth—of little or no avail.

Mr. COTMAN read a paper on the Value of a Coroner's Inquest. He was of opinion that the present arrangements did not fully conduce to the point of a coroner's inquiry—viz., the assigning the true cause of death. In some instances an inquest was held where it was unnecessary, and in others no inquest was held where, in the medical man's opinion, it was evidently called for. Mr. Cotman thought that the medical man should be the adviser of the coroner where the latter was not a medical man, especially as to the advisability of a post-mortem examination, since in many cases where an inquest was held the verdict was valueless owing to the absence of a post-mortem examination.—Dr. SMITH inquired if any practical inquiry was likely to be the outcome of this paper. The direction of activity which this society might assume would be that of a petition praying for an inquiry into the matter.—The PRESIDENT alluded to the Scotch practice of the procurator-fiscal acting under the advice of a medical man. He thought this was an improvement on the English system.—Dr. GLOVER LYON thought that the question of getting up a petition should be referred to the council.—Mr. H. J. SEQUEIRA spoke of the existence, in some cases of murder and suicide, of simultaneous inquiries by the coroner's court and the magistrate's court.—Mr. ADAMS spoke in favour of a coroner's inquiry in all cases of death from violence. He thought that medical men with a legal qualification should be appointed as coroners.—Mr. COTMAN, in reply, quite agreed with the suggestion of Dr. Smith as to a petition, but he was not sure as to whom the petition should be presented to. He maintained the object of his paper to be the improvement of the relations of medical man and coroner. The medical man should be treated as an expert witness, and not as a mere ordinary witness.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

The Alleged Exceptions to the Rule of Secrecy.—The Relation of Diabetes and Glycosuria to Insanity.

A GENERAL meeting of this association was held at 11, Chandos-street, W., on Nov. 19th, under the presidency of Dr. JULIUS MICKLE. There was a large attendance of members. Eleven new members of the association were elected.

Dr. MERCIER read a paper entitled "To Examine the Alleged Exceptions to the Rule of Secrecy." He referred to the fact that neither the Royal College of Physicians of London, nor the Royal College of Surgeons of England, nor the British Medical Association had made any official pronouncement upon the question of professional secrecy, and pointed out reasons which made the subject more important to that branch of the profession dealing with mental disease than to any other—namely, that (1) to no member of the profession were secrets so important habitually confided; and (2) the revelation to a third person of information gained by examination of a patient was a matter which seldom came up for the consideration of the general practitioner, the physician, or the surgeon, but to those dealing with insane patients it was a matter of daily and hourly necessity. The decision had to be made constantly and upon the spur of the moment, often with no time for consideration. The accusation had, however, never been made against alienists of unduly and unnecessarily revealing the secrets of their patients. The knowledge imparted by a patient to a medical man as to his disease was conceded on the implied obligation of secrecy. He impugned the dogma laid down recently that the medical man must be the sole judge of the circumstances under which the secret of the patient might be published. He examined the alleged exceptions as to the rule of secrecy. 1. As to evidence in a court of law. He held that there were still circumstances in which a man was bound to act according to his conscience even if in doing so he incurred the terrors of the law. 2. As to the revelation of the fact of a crime having been committed. He did not consider it part of the duty of the medical profession to transform itself into an auxiliary detective force, and that it was neither usual nor desirable to use against a patient information gained under the seal of the medical confessional. 3. As to the protection of the medical man's own wife and children. The admission of such an exception he considered would be so one-sided as to vitiate the contract of secrecy altogether, and that it had no foundation in principle or practice. 4. To prevent an impending crime. There being no legal guidance on this question individual judgment must be relied upon. Practically the instances seemed limited to one particular crime—viz., the procuring of abortion, as in other cases the knowledge was not usually gained from the criminal. 5. Cases in which the malady of the patient involved danger to the community. This difficulty could generally be effectively dealt with in ways which did not involve the divulging of a professional secret, and in the notification of infectious diseases the patient might be said to have given his consent through his representative in Parliament. He concluded that a medical practitioner was not under any circumstances justified in revealing the confidence of a sane patient without his consent, and with regard to an insane patient the information obtained from him might be revealed when, and only when, it was expedient for the welfare of the patient or for the public safety.—The paper was discussed by Dr. RAYNER, Dr. BLANDFORD, Dr. SAVAGE, Mr. KESTEVEN, and Dr. WHITE and general agreement expressed, but further discussion was postponed till the annual meeting, when Dr. Mercier proposed to embody his conclusions in the form of resolutions.

Dr. C. H. BOND read a paper on Further Points in the Relation of Diabetes and Glycosuria to Insanity. This paper was a continuation of one on the same subject published in the *Journal of Mental Science* for February. By a combination of the results then reported with those since obtained the conclusion was arrived at that out of 355 recent cases examined 5·35 per cent. showed sugar in the urine on admission to Banstead Asylum. Cases of glycosuria far exceeded cases of true diabetes; only two of the 355 suffered from the latter, while apparently about 5 per cent. of all recent cases of insanity might be expected to show glycosuria. By the administration of uranium nitrate the excretion of sugar in the urine could be entirely stopped and thus the question of the dependence of mental symptoms upon glycosuria could be studied. He concluded that the saccharine urines met with among the insane occurred in two main groups, those of true diabetes and those of glycosuria. The former embraced instances where the disease developed during the progress of the mental malady and could in no way be said to cause it, and also included cases where the insanity might be considered as caused by the diabetes, the treatment of which by nitrate of uranium appeared to be very encouraging. Glycosuria in association with insanity might be persistent, or intermittent, or remittent. The majority of cases suffered from melancholia. Maniacal patients, epileptics, and congenital cases were apparently exempt. In many there was a distinct history of alcoholic intemperance and traumatism in a few cases. In some glycosuria disappeared *pari passu* with mental symptoms. But freeing the urine of sugar by uranium nitrate in this class of cases seemed unattended by beneficial results mentally.—The PRESIDENT considered that anything lowering the nutrition of the nerve centres might produce mental breakdown and that in some individuals the presence of glycosuria just turned the scale. He pointed out that nitrate of uranium had been used more than thirty years ago for throat affections associated with glycosuria.—Dr. SAVAGE laid stress on the frequency with which glycosuria alternated with insanity.—Dr. GOODALL quoted foreign observers as to the frequency with which glycosuria had been met with in cases of general paralysis, and observed that they did not appear to have observed alternation.—Mr. BOWES supported the theory of alternation.—Mr. DOUGLAS asked as to the age of patients and said he had found great benefit from the use of bromide of potassium in diabetes.—Dr. BOND considered the mental symptoms did not depend on the glycosuria, but thought it was important to remove the sugar by the use of uranium. He was struck by the absence of young cases of diabetes with insanity.

The next meeting was announced to be held at Nottingham on Feb. 18th.

SOCIETY OF ANÆSTHETISTS.

Anæsthesia in Cases with Obstructed Air Passages.—A New Ether Inhaler.

A MEETING of this society was held at 20, Hanover-square on Nov. 19th, Mr. G. H. BAILEY, the President, being in the chair.

Mr. H. BELLAMY GARDNER read a paper on Two Cases with Obstructed Air Passages requiring an Anæsthetic. Such patients could be anæsthetised with chloroform remarkably well when the obstruction was of gradual onset. The first patient was a boy aged eight years with multiple papillomata in the larynx under the care of Dr. Willcocks in the throat department of Charing-cross Hospital, and he was required to be anæsthetised for removal of the growths *per vias naturales* without laryngotomy. He had considerable dyspnœa, with retraction of the lower six intercostal spaces, and a small rapid pulse; his voice was lost and the lips were slightly cyanosed. The operator desired to have him in the sitting position to use the laryngoscope. Mr. Gardner decided that ether and its mixtures were inadmissible, that morphia taken before the anæsthetic would add to its danger, and that gas with a percentage of oxygen would not give the operator time enough. He therefore chloroformed the little patient lying on his left side, and when corneal reflex was abolished he inserted Hewitt's tubular mouth-gag and, introducing chloroform with Junker's apparatus, raised the child against his own chest in the mid-line. There had been six several operations at intervals of a fortnight or more and the patient was greatly improved. It was now very difficult to abolish the coughing reflex, as the child took much larger quantities of chloroform. The second case was that of a powerful man aged twenty-four years, over 6 ft. 2 in. in height, whose cheeks, gums, and tongue were firmly cicatrised and bound together after an attack of purpura hæmorrhagica in November, 1895. In May, 1896, Mr. Stanley Boyd desired to operate upon him in Charing-cross Hospital for complete closure of the jaws produced by contraction of the cicatricial tissue. Mr. Carter Braine anæsthetised him, using six drachms of chloroform on Esmarch's mask before he was ready for operation, and lint well soaked with chloroform as well as Junker's nasal tube was needed to keep him asleep. He was laid supine, with slightly dependent head, so that all blood getting into the mouth should flow away from the larynx, it being impossible to sponge out the mouth in any way; the lower lip was split and dissected off the jaw and a large flap raised from the chin to the neck to line the cheek on the left side. Screw-gags effected a slight separation of the teeth (half an inch), then Mr. Gardner continued with Junker's apparatus alone. Once the patient showed pallor from loss of blood, but by the use of A.C.E. in the Junker's apparatus his colour and pulse improved. The operation lasted three hours in all, and three similar operations were subsequently performed on the same

patient, lasting respectively fifty minutes, two hours, and half an hour. The danger under the anæsthetic was that of obstruction in the pharynx from the tongue or blood, but the partly dependent head and retention of the coughing reflex tided over the difficulty. Here, again, toleration was shown by the larger doses of chloroform required. Respiration needed constant care in both these anxious cases.—Mr. CARTER BRAINE said that he remembered the last case very well; it was an entremely anxious one. The patient's mouth was so cicatrised up that only the tip of the little finger could be introduced and the teeth were firmly clenched together. Chloroform was obviously the only anæsthetic to be administered, and any attempt at vomiting, which could only have been of a fluid nature, would have necessitated immediate tracheotomy.

Mr. GARDNER also described a new Ether Inhaler which he had devised to provide a very free breathing channel, a plentiful reserve of ether, and a very gradual method of introduction of ether upon the sponge inside by means of an expansion chamber working on the principle of Dalton's law.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens

A MEETING of this society was held at the Great Northern Central Hospital on Nov. 8th, Mr. J. MACREADY, President, being in the chair.

Mr. STANFORD MORTON showed several cases illustrating the Treatment of Lacrymal Stricture by means of Styles. The style used was made of lead wire of such a length that the lower end passed through the stricture. The upper end was bent so as to lie almost hidden in the incised canaliculus. This method of treatment was particularly adapted to those cases in which stenosis constantly recurred, and also where by reason of distance the patients could not be seen sufficiently frequently. One of the cases shown had worn the style for more than two years without discomfort and in other cases this period had been exceeded.—Mr. MORTON also showed a case of Extirpation of a suppurating Lacrymal Sac done as a preliminary to cataract extraction. The case had done well and there was scarcely any epiphora.

Dr. SYERS exhibited a case showing marked Dilatation of the Superficial Veins of the Thorax and Abdomen. The patient was a widow, aged forty-four years, and was in her normal health until a year previously, when she began to cough and to complain of shortness of breath. About six months ago the veins became enlarged; now they were greatly distended and some of them were very tortuous. The current of blood in them flowed from above downwards. The superficial veins of the neck and of the upper limbs were also somewhat enlarged. The face was dusky. There was dulness with deficient breath sounds at the base of the right lung. On two occasions a needle had been inserted and blood-stained fluid withdrawn. This fluid, submitted to microscopic examination, showed principally blood corpuscles. The case appeared to be one of mediastinal growth causing pressure on the superior vena cava, probably also implicating the right pleura. The appearance of the chest was strikingly similar to that of a case recorded in vol. ii. of Sir Thomas Watson's "Principles and Practice of Physic," in which case the pressure was on the inferior vena cava and was due to hydatid of the liver.

Dr. JAMES GALLOWAY drew attention to a new preparation described by Dr. Unna of Hamburg under the title "Gelanthum: a New Watery Varnish." Recognising the advantages such a preparation should possess in the treatment of many skin affections especially eczema, he had attempted to obtain some of the material for trial. Failing in his efforts to obtain the substance from the firm mentioned in the article referred to, he had consulted with Mr. Skinner, dispenser at the Great Northern Hospital, who had produced a very satisfactory preparation, making use of processes which were a modification of those described by Dr. Unna. Dr. Galloway then described the method which Mr. Skinner had made use of, by which he had made the preparation in a considerably shorter period than that described as necessary in the above-mentioned article. Specimens of the remedy were shown to the members. Dr. Galloway remarked that it was as yet too soon to speak of the results of treatment. He had, however, used the preparation in several cases of eczema with satisfactory results. The subject had been brought forward especially with the purpose of showing that the preparation was not a difficult one to make and to suggest its use in treatment.

Dr. MALCOLM brought a case of Congenital Malformation of the Heart. The patient, a man aged thirty-five years, presented in a marked degree the usual signs of such a condition, while the clubbing of the finger ends was excessive. Dr. Malcolm particularly drew attention to the age of the patient as being remarkable when considered in connexion with the marked incompetence of the heart. The cyanosis was increasing.

Mr. ALLAN HAIR exhibited a case of Gumma of the Bursa Patellæ in a woman about forty years of age. On the skin of the lower half of the leg of the same limb there were some typical tertiary syphilitic ulcers. There was an opening in the skin over the bursa through which the sloughing anterior wall of the latter protruded.

Mr. TRAER HARRIS showed a case of Fracture of the Lower Jaw treated by Hammond's interdental splint. The fracture was in the usual position between the canine and lateral incisor teeth, but the displacement had been the reverse of that commonly met with, since in this case the smaller fragment was displaced downwards. The patient had been wearing the splint for eight weeks—that is, for a period rather above the average, because there was still a small sinus leading down to the fracture and because it was feared that there was necrosis causing a delay in the union of the fragments.

Mr. MOWER WHITE showed (1) a case of Rupture of the Left Adductor Longus Muscle, the result of an accident while riding; and (2) a case of Fracture of the Olecranon treated by wiring.

Dr. FREYBERGER exhibited pathological specimens illustrating Tuberculous and Typhoid Ulceration of the Intestine. Of special interest were the intestines of a boy aged seven years who had died from hypostatic pneumonia at the end of the fourth week of typhoid fever. The small intestine contained numerous ulcers, some of which were already healing; but in the last ten inches of the ileum and in the cæcum, ascending and transverse colon, were numerous solitary follicles, swollen, infiltrated, and in many instances necrotic. Two brothers and a sister under treatment at the same time for typhoid fever were doing well.

MIDLAND MEDICAL SOCIETY.

Exhibition of Cases and Specimens.—Gastrostomy for Œsophageal Obstruction.

AN ordinary meeting of this society was held on Nov. 25th, Dr. ALFRED H. CARTER, President, being in the chair.

Mr. T. F. CHAVASSE showed a man aged eighty-six suffering from Multiple Lipomata of the Tongue. The largest was of the size of a Tangerine orange, and had been growing for twenty years. The patient declined to undergo any operative treatment.

Dr. KAUFFMANN showed a lad aged sixteen years who suffered from Pseudo-hypertrophic Muscular Paralysis of a somewhat unusual form. He had never been able to run, and ever since he had walked had "worn irons" on his legs. He was now able to walk quickly, but the gait was characteristically waddling from weakness of the extensors of the hips. The glutei and all the muscles of the thighs were greatly wasted, the right side being affected slightly more than the left. The muscles of the calves were enlarged and shortened, pointing the feet to a slight degree; the knee-jerks were nearly absent. The shoulder-girdle muscles were, however, entirely free from either wasting or pseudo-hypertrophy. The mental condition was excellent, and the patient had two sisters and one brother neither of whom showed a trace of this disease. No account of similar affection on the mother's side could be elicited.

Professor SAUNDBY showed part of the Intestine with Typhoid Ulceration, from the body of a girl who was sent into hospital as a case of pneumonia; but he had diagnosed typhoid fever, mainly on the balance of probabilities. She was extremely emaciated, but had only taken to her bed a day or two before admission. While in hospital she was semi-comatose, the abdomen was flat, slightly tender and free from rash; the spleen was not enlarged; the bowels were confined and the stools atypical. The temperature was irregular, sometimes as high as 104° F., at others subnormal.

After being in hospital a week she improved a little, but the improvement did not last; she had several rigors, followed by the formation of abscesses in various parts of the body which were opened and healed rapidly. On the fourteenth day after admission she complained of pain in the abdomen and vomited, but the abdomen remained flat. She became profoundly asthenic, and died on the seventeenth day of her stay in hospital. The necropsy showed extensive suppurative peritonitis and a perforated ulcer a few inches above the ileo-cæcal valve. There were several typical typhoid ulcers above and below the valve. The case was noteworthy on account of the obscurity of the diagnosis throughout and of the latent fashion in which the perforation and peritonitis had supervened.

Mr. BARLING read a paper on Gastrostomy for Œsophageal Obstruction. He pointed out that the two chief requirements are a safe operation and a gastric fistula which does not leak. The best method devised, in his opinion, was that of Albert as described in Kocher's book on operative surgery. He showed two patients operated upon on these lines respectively eight and six months ago, in which the results were very satisfactory.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

Hydatids of the Liver.—Exhibition of Cases.

A MEETING of this society was held on Nov. 19th, Mr. RECKLESS, President, being in the chair.

Mr. LOCKWOOD showed a case of Myositis Ossificans in a boy four and a half years of age. Stiffness of the right shoulder followed an accident at Christmas, 1894. Then stiffness of the left shoulder was noticed, the head was drawn to the right side, and ossification began to form in certain muscles of the back. In his present condition the boy stands with his head bent forward and his hands crossed in front of him; the spine is flexed and quite rigid; he cannot move his shoulders at all and he cannot raise his hands to his mouth. The right pectoralis major is ossified and ossification is commencing in the left. At the back are a large number of hard masses, presumably ossifications in the latissimus dorsi and trapezius. The terminal phalanges of the third and fourth left toes and of both large toes are absent; this condition of the feet is congenital and has been noticed in other cases.

Dr. ARTHUR HALL showed (1) a case of Sporadic Cretinism treated by thyroid extract; and (2) a specimen of Aneurysm of the Innominate Artery, and made remarks on some unusual points in this case.

Dr. PORTER showed a patient who had been under his care with Paraplegia, a Frontal Node, and some Palsy of the Ocular Nerves on the same side as the node, and who had recovered rapidly and completely under mercury and iodide of potassium. There was no definite syphilitic history, but the patient had given birth to four stillborn children.

Dr. SINCLAIR WHITE related particulars of four cases of Hydatids of the Liver on which he had recently operated, and showed specimens illustrating his cases. One case was exceptionally interesting on account of its obscurity. The tumour came from the under surface of the left hepatic lobule and becoming inflamed formed extensive adhesions to the small intestines and anterior abdominal wall. The cyst, a suppurating one, together with the portion of the liver from which it sprang, was excised. Hæmorrhage from the wounded liver was satisfactorily stayed by inserting thick silk ligatures parallel to the line of section. The patient, a lad aged seventeen years, made an excellent recovery. Reference was made to recent improvements achieved in the treatment of hydatids of the liver, and preference was expressed for the "immediate method of evacuation" provided that the surgeon was satisfied that he could guard against sepsis during the operation and afterwards.

The PRESIDENT, Mr. MAKEIG JONES, and Dr. MARTIN made remarks.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, MARYLEBONE-ROAD, N.W.—The committee of Queen Charlotte's Lying in Hospital have received a donation of £1000 from the Dowager Lady Howard de Walden through Mr. F. G. Cavendish Bentinck, towards the Extension and Improvement Fund.

Reviews and Notices of Books.

Twentieth Century Practice: an International Encyclopædia of Modern Medical Science. Vol. VI.: *Diseases of the Respiratory Organs.*[1] Edited by THOMAS L. STEDMAN, M.D. New York City. In twenty volumes. London: Sampson Low, Marston, and Co. 1896. Pp. 743. Price 24*s.* per vol.

IN general production, paper, and print this volume is admirable. The matter is only partly up to the standard claimed by the title and not a little is poor. Dr. Prosser James opens with an article on the Nose, which is far from exhaustive. Acne is dismissed in twenty-one lines, and rodent ulcer in about the same number, and no assistance whatever is given in diagnosing the condition from others for which it is from time to time mistaken. Some mention of tuberculin should be made in the account of Lupus, its effects in this disease being at any rate interesting. No adequate description of the various pathological states in hypertrophic rhinitis is given, and a few illustrations of microscopic appearances would be useful. In describing the nasal douche its dangers are not pointed out sufficiently clearly, and the directions given for its use are not nearly so good as the original directions of Pollitzer. The author omits all mention of working in chrome compounds as one of the recognised causes of perforation of the septum. The bibliography is fairly good; but the last edition of Mr. Lennox Browne's book (1893) should be given and not that of 1878. A short article of thirty pages by Dr. Jonathan Wright of Brooklyn on the Accessory Sinuses of the Nose is practical and his explanation of some of the cases classed by Dr. Woakes as necrosing ethmoiditis possible.

Dr. E. J. Moure of Bordeaux writes on the Diseases of the Naso-pharynx and Pharynx and on Diseases of the Tonsils. Both these articles are clear, full of detail, and readable. Dr. Moure insists strongly on careful disinfection of the finger before exploration of the naso-pharynx for adenoids, and advises that in every case general anæsthesia should not be induced for their removal. "As far as possible during the days preceding the operation the region is carefully disinfected by means of irrigations of boric acid solution, repeated two or three times a day. The child thus becomes accustomed to these irrigations, which will be of very great utility after the operation. I also take care, when having to do with a child of from five to twelve or thirteen years, to have him subjected to a sort of training in order to accustom him to the passage of the adenotome. For this purpose an adenotome is introduced behind the velum and then withdrawn. It is rare that a child, even one not particularly docile, does not allow this instrument to be passed without the least difficulty after three or four *séances*." ..... "It is not very uncommon to meet with suppurative states coming on four or five days after the operation. This accident may be prevented by using only sterilised instruments, having the field of operation thoroughly aseptic, and continuing the disinfection of the raw surface by means of antiseptic irrigations practised three or four times a day." In the treatment of chronic granular pharyngitis, the author lays stress, perhaps scarcely sufficiently, on the need of treating the general condition of the patient in such cases. The formula "granular pharyngitis = cautery," which has become so prevalent, is as useless as it is illogical. "We should not proceed so energetically against the follicular enlargements, but should rather seek the cause and combat, or if possible suppress, that." In describing herpetic tonsillitis and distinguishing it from diphtheria, Dr. Moure takes up the position that the

[1] Reviews of Vols. I., II., III., IV., and V. were published in THE LANCET of Nov. 30th and Dec. 7th, 1895, and Jan. 4th, May 9th, and Aug. 29th, 1896, respectively.

discovery of the Klebs-Löffler bacillus in the throat in a case which does not clinically appear to be diphtheria is not to be taken as proof that the disease is diphtheria. "In the little false membrane which represents the empty cover of the vesicle Löffler's bacillus has been found rather frequently of late, and from this it has been concluded, very erroneously I believe, that a herpetic angina is possibly a diphtheritic angina. The affection, so far from conferring immunity, seems to predispose to new attacks." It is difficult to follow him here, though it is perfectly true that the Klebs-Löffler organism has from time to time been found on the buccal mucous membrane of an apparently vigorous and healthy individual. If the Klebs-Löffler organism is found in the "small discrete white spots, two to four in number on each tonsil," the disease is surely diphtheria and nothing else. The presence of labial herpes and the absence of cervical gland enlargement is of no value whatever in shaking the diagnosis. Dr. Moure, however, wisely adds: "In all cases of doubt we ought to act as if we were dealing with a case of diphtheria, especially if a bacterioscopic examination has been made and the Klebs-Löffler bacillus found either alone or associated with some other micro-organism." The account of membranous angina due to other organisms than the Klebs-Löffler bacillus, such as streptococci, the pneumococcus, and bacterium coli commune, is good, but the name given to this condition, "non-diphtheritic pseudo-membranous angina," is singularly unfortunate. There is no "pseudo" whatever about the membrane; it is obviously there, and it is only "non-diphtheritic" if diphtheritic is to be used to connote merely "membrane produced by Klebs-Löffler bacillus." Within the limits of nine pages there is a very fair account of diphtheria, but a great deal is necessarily omitted. Rheumatism as a cause of acute tonsillitis does not seem, according to the author, to play the important part it is generally held to play in this country; at least, he does not mention it at all prominently.

Dr. Buck of New York does not do himself justice in attempting to treat of Diseases of the Ear in forty-five pages. Few will agree with him that in the simple process of removing impacted cerumen from the external auditory meatus it is often better for a skilled person to use instruments than a syringe and hot water. He lays due stress on the need of skill, but even with such skill the number of cases where instruments are necessary is very small and the instances of harm done by syringing very few. With the exception, however, of this small point, a concise, accurate, and useful summary is given in these few pages. Diseases of the Larynx are treated very fully by Dr. Francis H. Bosworth of New York in an article which extends over 168 pages and is well illustrated. In cases of acute laryngitis secondary to acute rhinitis "these parts [the nose and nasopharynx] should be thoroughly anæsthetised and exsanguinated by a 4 per cent. solution of cocaine, after which I know of no better treatment than the application of a small crystal of chromic acid to the most prominent portion of one or the other turbinated bodies, thus pinning the membrane down, as it were, by an inflexible slough, which thus holds the turgescence in check and prevents a re-filling of the venous sinuses." The precise sequence of events is a little difficult to grasp, and chromic acid treatment would seem scarcely necessary in the bulk of cases. The author's account of chronic laryngitis and his directions for general treatment are thoroughly practical.

In discussing Croupous Laryngitis, Dr. Bosworth says: "Believing croup and diphtheria to be separate and distinct we give the name "croupous laryngitis" to a class of cases in which there is fibrinous exudation in the larynx unattended by any of the septic features of diphtheria. ..... I believe as firmly in the existence of a specific germ which causes croupous laryngitis, *although it has not yet been isolated*, as I do in the germ of diphtheria. ..... In every case which has come under my observation exudation in the fauces preceded involvement of the larynx. I think there is good ground for the belief that a croupous deposit in the fauces may cause a croupous laryngitis, and this despite the fact that acute follicular tonsillitis is of very frequent occurrence in the autumn and winter and is rarely followed by croupous laryngitis. The somewhat feeble germ causing acute follicular tonsillitis, whose action is limited to the production of an exudation in the crypts of the tonsils, in a more active state gives rise to a fibrinous exudation covering the face of the tonsil; while there is another germ related to the croup germ, but infinitely more active, which produces diphtheria." The subject is admittedly a difficult one, but Dr. Bosworth's statement does not in any way help to advance matters. There are several organisms certainly which can produce, and do produce, membrane on the tonsils, and undoubtedly in some cases such membrane does spread to the larynx. The "croup germ" of Dr. Bosworth includes several organisms not at all related to one another and having nothing to do with the Klebs-Löffler bacillus. Dr. Bosworth gives an excellent account of both syphilis and tuberculosis of the larynx and of the various paralyses. On page 441 the plate represents a paralysis of the right thyro-arytenoideus muscle, but is by a slip described as a paralysis of the left. There is no bibliography at the end of this or of the five preceding articles. In a large book of reference these should certainly not have been omitted. The next section on Diseases of the Trachea and Bronchial tubes, by Sir Thomas Grainger Stewart and Dr. George A. Gibson, covers 136 pages. Their contribution to this volume is thoroughly good right through, and especially so in the accounts of bronchiectasis and asthma, which scarcely leave room for crit cism. In discussing the treatment of bronchiectasis the authors advocate intra-tracheal injections of menthol, guaiacol, and olive oil, and are able to claim better results than have fallen to the lot of most who have used this method. "The result in all the cases in which we have tried it was a steady diminution and disappearance of the fœtor with improvement in all respects, and that although the usual methods of treatment had failed." Intra tracheal injections are, as the authors say, quite easy to carry out, but they fail altogether in some cases of bronchiectasis. It might be well in a second edition to give a figure of the syringe used for this purpose. No mention is made of the use of the "creasote bath" in such cases, though very striking and excellent results from its use have been reported by a number of observers. The authors scarcely, also, bring out sufficiently the fact that in the vast majority of bronchiectases operation is totally useless; they assert, and rightly, that operation is indicated "(1) where the physical signs point to the existence of one main cavity; and (2) where the physical signs indicate affection mainly of one lung, and especially of one main cavity in that lung"; but they do not point out that this condition occurs but rarely and that the diffuse form is much the more common. They give a very good bibliography.

Dr. Winslow Anderson of San Francisco writes on Diseases of the Lungs (excluding croupous pneumonia and tuberculosis). His account of diseases of bloodvessels in the lungs is good and full. Chronic pneumonia is moderately well described; the account of malignant disease of the lungs is poor.

Judged by anything like a high standard, this volume largely fails. It cannot hope to supersede already existing works. Better descriptions of some of the sections are to be found in well-recognised text-books, and the excellence of one or two of the articles only partially makes up for the *lacunæ* in others.

JOURNALS AND REVIEWS.

The British Journal of Dermatology for October and November. London: H. K. Lewis, 136, Gower-street.—The October and November numbers of this journal keep up to their previous standard of original scientific work and records of clinical interest. The October number contains the fourth and concluding article of an Inquiry into the Plurality of Fungi causing Ringworm in Human Beings as met with in London, by Dr. Colcott Fox and Dr. F. R. Blaxall. These researches, which must have involved the expenditure of immense labour and time, and bear the stamp of having been carried out with great care and accuracy, while confirming Sabouraud's statements in the main—viz., that the fungi producing ringworm fall under at least three groups—the microsporum Audouini and the trichophyton endothrix and endo-ectothrix, the first having small spores and the other two, large spores, modify many of his statements in minor particulars, chiefly in showing that they were rather too definite and that all the distinctions between the varieties and their clinical connexions could not be maintained. All the articles are profusely illustrated. The other papers are—an Unusual Case of Dermatitis Herpetiformis by Dr. Liddell, and the second report of the Third International Congress of Dermatology. The usual useful extracts from foreign literature complete the number. In the November number is, first, a remarkable case with plate of Nævus Acneiformis Lateralis by Dr. Selhorst of The Hague. An article follows by Dr. Dubreuilh of Bordeaux on "Bald Ringworm," in which he contends "that ringworm does not give rise to true alopecia areata, but to a false appearance of it." Curiously enough, there is also a review of Sabouraud's work on the Origin of Alopecia Areata in which that author contends for a parasitic origin of the disease. Other articles are on the Non-identity of Yaws and Syphilis by Dr. Daniels of British Guiana, and a Note on a Peculiar Eruption from the contact of Arterial Blood by Mr. Marmaduke Sheild.

Analytical Records
FROM
THE LANCET LABORATORY.

"TAURINE."
(THE TAURINE CO., 6, CROSBY-SQUARE, E.C.)

TAURINE consists of a clear, red jelly, which dissolves slowly in cold water, the resulting solution exhibiting the characteristic spectrum of blood-colouring matter. It is practically destitute of taste, but agreeable to take in its jelly form. It contains 83·83 per cent. of moisture, 14·11 per cent. of organic solids, and 2·06 per cent. of mineral matter. The organic matter consists of nitrogenous principles, soluble in alcohol 6·25 per cent., soluble in water, chiefly gelatin, peptones, &c., 7·1 per cent., and 75 per cent. of meat albumin. There can be little doubt of the nutrient value of the preparation since it contains both the invigorating and sustaining constituents of prime beef. The preparation was in good condition, but proved to be preserved with boric acid.

(1) EXTRACT OF MALT, AND (2) MALT AND MILK.
(EVANS, GADD AND CO., 97-100, FORE-STREET, EXETER.)

The extract of malt preparation is of a very highly concentrated kind and contains a maximum proportion of the valuable extractives of malt. Despite the high degree of concentration the preparation also is not lacking in amylolytic power. According to our experiments it possesses a remarkable digestive activity in the conversion of starch into sugars. Nor is the preparation concentrated to this degree with sacrifice of flavour, which is quite free from any indication of burning, and is, in fact, pleasantly malty. The malt and milk preparation contains 75 per cent. of the extract with 25 per cent. of condensed milk. In this preparation we note with satisfaction that a requisite proportion of fat is present. The fact that active malt extract effects a solution of fatty substances should make this preparation of peculiar value. The flavour is pleasantly malty and with a suggestion of cream on account of the milk present.

FROMM'S VEGETABLE MEAT EXTRACT (CONGLUTIN).
(AGENCY: THE RED CROSS GERMICIDE CO., LIMITED, 61½, FORE-STREET, E.C.)

The interest in this preparation lies in the fact that it embodies both the dietetic properties of animal and vegetable substances. It certainly presents the composition, according to our analysis, of a complete food. The results were as follows:—Moisture, 26·00 per cent.; organic matters, 61·79 per cent.; and mineral matters, 12·21 per cent. The organic matters proved to consist of—fat, 38·75 per cent.; nitrogenous extractives by alcohol, 12·54 per cent.; and nitrogenous matters soluble in water, 10·50 per cent. Although this extract is largely of vegetable origin, yet it is practically free from starch and allied carbohydrates, so that it has been proposed as a food particularly suited to the diabetic, and, as a matter of fact, is said to have been used for that purpose with satisfactory results. In our examination we could find no constituents to which objection could be taken on this score. Apart, however, from this aspect of its dietetic value there is little doubt that it could be used with advantage generally as a valuable food resource. The quantity of fat is certainly excessive, but if we may judge from the ease with which it is saponified it should be of a readily digestive character. The preparation is an important and novel introduction and well worthy of trial.

LIQUEUR SCOTCH WHISKY.
(W. STENHOUSE AND CO., WEST REGENT-STREET, GLASGOW.)

The statement that this whisky is a blend of fine old whiskies and that it has been matured for ten years is borne out by its peculiar softness and mellowness of flavour. It is a singularly pure spirit in which any very pronounced flavour is practically absent. Analysis gave the following results:—Alcohol, by weight, 40·05 per cent.; by volume, 47·40 per cent.; equal to 83·07 proof spirit, extractives, 0·13 per cent.; acidity reckoned as acetic acid, 0·022 per cent. The residue gave reactions which are characteristic of a spirit stored for some time in sherry casks. This whisky is therefore entitled to the description of an old and pure spirit.

LIEBIG'S EXTRACT OF MEAT AND MALT WINE (KEYSTONE BRAND).
(STEPHEN SMITH AND CO., MALMESBURY-ROAD, BOW.)

It is satisfactory to find that our analysis, so far as it can indicate, bears out the statement that this wine is prepared from a reliable extract of meat (Liebig's) and from a reputed preparation of malt. Our analysis was as follows:—Alcohol, by weight, 12·62 per cent.; by volume, 15·58 per cent.; equal to proof spirit, 27·31 per cent.; extractives, 12·84 per cent.; and mineral matter, 0·77 per cent. The evidence of meat extractives is furnished by the fact that no less than 1·22 parts of the extractives consisted of nitrogenous principles. The wine is agreeable to the taste and evidently made from a sound vintage. Though not to be regarded *per se* as a nutrient, yet its value as a restorative, tonic, and stimulant is beyond question.

HOLYROOD TABLE WATER.
(J. F. MACFARLAN AND CO., 93, ABBEYHILL, EDINBURGH.)

The composition of this water is said to be based upon the analysis of the best imported waters. We presume that by "imported waters" is meant natural carbonated waters. As far as our analysis goes this statement is justified. Thus the water was alkaline, equal to 1·51 parts of bicarbonate of sodium per litre, and contained also 0·58 parts of common salt, the total solids by direct experiment amounting to

2·46 grammes per litre. The residue obtained on evaporation showed some sign of charring, but no objectionable smell was observed. Lime was present in small amount, probably partly as carbonate and partly as sulphate. The water is agreeably soft to the palate, bright, and well aerated.

New Inventions.

THE "RICHARDS" HYPODERMIC SYRINGE.

THE "Richards" hypodermic syringe is the only one that is self-contained, no box or other receptacle being required. It may, in fact, be carried in the pocket like a pencil or pen, and takes no more room. The needle and syringe, while readily detachable, may always be carried attached and ready for instant use. The glass barrel of the syringe is enclosed in

a metal tube partially cut away on one side so as to show the graduations on the glass; to one end of this tube there is screwed a metal cap two and a quarter inches long which protects the needle, while at the other end there is a small cap to cover the knob of the piston. As carried in the pocket it forms a plated metal tube five and a quarter inches long and less than half an inch in diameter. Messrs. Arnold and Sons, London, are the manufacturers of these syringes and have been appointed sole agents for the sale of them throughout the United Kingdom.

PLASTER-OF-PARIS BANDAGES.

MR. JOHN MILNE, of the Antiseptic Dressings Factory, Ladywell, London, S.E., has forwarded to us a sample of his plaster-of-Paris bandages, in which the plaster in the state of a fine powder is thoroughly incorporated with the fabric, so that the bandage is instantly made ready for application by merely dipping it in water. A trial has shown that the plaster sets well and that an excellent casing or support for a limb may be made with about four thicknesses of the material. The manner in which the bandages are packed guarantees them against change or deterioration, each being sealed up in a tin canister similar to that employed for preserved meat or fruit. Over one of the sealed ends of the canister a loose lid is fitted, having inside it a moveable steel point, which at once cuts open the end of the canister when the lid is turned round upon it. This method of opening a canister is extremely easy and prompt and far superior to the use of the cutting-pliers or "sardine knife." These bandages are made in three widths—viz., two, two and a half, and three inches—and they are six yards long.

ROBINSON'S SURGICAL DRESSING.—ROBINSON'S TISSUE.

SUBSTANCES used for the dressing of wounds should not only be soft and absorbent, but should retain a certain amount of elasticity when saturated with discharges. Different dressings possess these qualities in varying degrees, and by an ingenious device Messrs. Robinson and Sons have succeeded in producing a material which unites in itself several advantages. Their method is to combine very thin sheets of absorbent cotton wool and cellulose wadding in alternate layers. Cellulose wadding has a high absorptive power, but when it is wetted its fibres cohere and lose their elasticity; the cotton wool, however, preserves the strength and texture of the fabric, so that the blend of the two materials is superior to either of them taken separately. The dressing is a thick, soft, fleecy sheet, resembling ordinary cotton-wool in appearance and well adapted for surgical use. It can be supplied either plain or sterilised with perchloride of mercury during its manufacture. The tissue is a thick sheet of the dressing covered with gauze on one or both sides. The manufacturers are Messrs. Robinson and Sons, Chesterfield, and 55, Fann-street, Aldersgate-street, London, E.C.

THOMAS WAKLEY,

THE FOUNDER OF "THE LANCET."

A BIOGRAPHY.[1]

CHAPTER XLVII.

The Analytical Sanitary Commission (Continued).—The Result of the Commission.—Mr. Scholefield's Act and Subsequent Legislation.

THE method employed in dealing with the analysis of coffee was followed in the analyses of other substances which appeared in the columns of THE LANCET during the next ten years, so that it will be sufficient to illustrate the task that Wakley set himself if not much more than the bare results of the different investigations are related.

The second substance dealt with by the Analytical Sanitary Commission was sugar. Having described the macroscopic and microscopic appearances of sugar, both cane and grape, and detailed the various substances—such as lime, lead, sawdust, starch, and acari—commonly found in impure specimens, the Commissioner gave the results of the examination of thirty-six brown sugars of different qualities and prices. Acari were present in thirty-five of the samples. Grape-sugar was detected in every sample, usually a proof of sophistication, for most of these sugars purported to be the much more powerful sweetening agent—cane-sugar. Stony particles or grits were observed in eleven samples and woody fragments in thirteen. In four samples a variable quantity of flour had been introduced, evidently for the purpose of adulteration. Fifteen samples of lump sugar were then examined, and the results were found to compare very favourably with the results of the examination of moist sugar, for there were no acari, no grape sugar, and no grits. Samples of moist sugar were then purchased in different parts of the metropolis, and every single one contained deleterious material, while two had been adulterated with flour.

The next article which fell under the Commission was arrowroot. The name "arrowroot" had been made, by dealers in the first place and in the second place by the general public, to cover almost every fecula bearing any resemblance to the true Maranta arundinacea, no matter how dissimilar the original plant might be. As a result there were several powdered substances in the market varying in price from a few pence to two or three shillings the pound, none of which were Maranta, but all of which had the valid claim o custom to the appellation "arrowroot.' The Commissioner decided to get over this confusion by stating in his analyses the name of the plant from which the arrowroot was derived, to which end he examined specimens under the following names—Maranta arrowroot; Manihot arrowroot, or tapioca; Tacca arrowroot, a pulped tuber from Otaheite; Curcuma arrowroot; Arum arrowroot, the tubers of cuckoo-pint; and British or potato arrowroot, which was, frankly, potato-meal. The adulterations to which arrowroot was found to be commonly subjected were (1) the mixing of other tubers in varying proportions with true Maranta, (2) the substitution of an inferior for a

[1] Chapters I., II., III., IV., V., VI., VII., VIII., IX., X., XI., XII., XIII., XIV., XV., XVI., XVII., XVIII., XIX., XX., XXI., XXII., XXIII., XXIV., XXV., XXVI., XXVII., XXVIII., XXIX., XXX., XXXI., XXXII., XXXIII., XXXIV., XXXV., XXXVI., XXXVII., XXXVIII., XXXIX., XL., XLI., XLII., XLIII., XLIV., XLV. and XLVI. were published in THE LANCET, Jan. 4th, 11th, 18th, and 25th, Feb. 1st, 8th, 15th, 22nd, and 29th, March 7th, 14th, 21st, and 28th, April 4th, 11th, 18th, and 25th, May 2nd, 16th, 23rd, and 30th, June 6th, 13th, 20th, and 27th, July 4th, 11th, 18th, and 25th, Aug. 1st, 8th, 15th, 22nd, and 29th, Sept. 12th, 19th, and 26th, Oct. 3rd, 10th, 17th, 24th, and 31st, and Nov. 7th, 14th, 21st, and 28th respectively.

superior root, or (3) the addition to one of these genuine "arrowroots" of some fecula not generally recognised as arrowroot at all. The most common sophistication in the trade was the addition to the genuine Jamaica arrowroot or Maranta root of potato-flour or tapioca in varying proportions. A second form of adulteration was the substitution of sago or potato-meal for Maranta. A third was the addition of potato-flour to an inferior root such as tapioca. The net result of the examination of fifty samples differing in quality, price, and appearance was instructive. In the first seventeen samples, all highly-priced arrowroots varying from 1*s.* 8*d.* to 3*s.* 6*d.* a pound, ten were found to be unadulterated and seven adulterated, four to an extreme extent. Of the next twenty-eight samples of lowly-priced arrowroots varying from 1*s.* to 1*s.* 6*d.* per pound, seventeen were found to be unadulterated and eleven adulterated, five of the latter very grossly. In one of these adulterated specimens a few grains of genuine Maranta arrowroot were detected by the microscope, but three samples consisted of a mixture of potato-meal and sago-flour, while a fourth proved to be potato-meal only. The last five samples were articles sold in canisters which bore the dealers' warranty setting forth the very superior and unusual quality of the article and challenging observation and scrutiny. Of these one was marked "Superfine West India Arrowroot Warranted Genuine"; this was heavily charged with potato-flour. A second was "Recommended by the Faculty" as the most nourishing of all foods for children and invalids; this was entirely tapioca save a few grains of Maranta arrowroot. A third was "warranted free from adulteration" and was merely potato-flour. The fourth and fifth were labeled "arrowroot" and consisted of nothing but potato-flour.

Pepper next engaged the Commissioner's attention with the result that he discovered that more than half the pepper purchased previously to certain convictions secured by the Excise officers was adulterated, but that subsequent to the enforcement of the law by the Excise authorities with regard to this particular condiment adulteration in an extensive form had ceased, forming a remarkable example of the practical effect of a little of the legislative interference which it had been Wakley's chief aim to make general by the institution of the Analytical Sanitary Commission.

The next inquiry was larger in scope and of a different character. Its subject was the water-supply of London, and it was dealt with in a fearless and uncompromising manner. The nature of the various impurities of water was first explained and the action of the reservoir or cistern in favouring such impurities was discussed. A number of experiments were recorded dealing with the action of water on lead and iron, and the sources of the London water-supply at that date were investigated. The summary of the investigation ran as follows:

> "The waters as present in use in this metropolis are all hard, and have all the disadvantages of hard waters; they are, moreover, river waters, and for the most part contaminated to a great extent with organic matter, dead and living; add to these points their further deterioration by contact with lead in cisterns and by the accumulation and growth of animal and vegetable productions which take place in those receptacles, and the case is proved against the whole of the present supplies of the metropolis."

From big to little—the next investigation concerned mustard. Here the Commissioner succeeded in demonstrating that genuine mustard, whatever the price paid, was not apparently to be obtained in the year 1851. Of forty-two samples submitted to examination every one was adulterated, and in every case the adulteration was the same in kind, varying only in degree, and consisted of the admixture of wheat-flour and turmeric as a colouring agent.

Bread came next and was made the subject of close investigation. The first report dealt merely with the chief constituents of bread as made from wheat, barley, oat, rye, rice, or Indian corn-flour. The diseases of cereal grasses were detailed and the microscopic appearances of ergot and the different smuts, rusts, and mildews were described. Next the results of the chemical and microscopical examination of forty-four samples of wheat-flour purchased from different corn-chandlers and bakers residing in the metropolis were given, to show that in no instance was there any other farina than wheat observed. This satisfactory result was attributed to the repeal of the Corn Laws, but also pointed to the fact that the millers and corn-dealers were honest folk and that the bakers must be considered to bear the responsibility for anything other than wheat-flour found in the bread. Twenty-four samples of bread having been purchased at random at the establishments of bakers in the metropolis, the result of examination was that every sample was found to be adulterated with alum.

Cocoa was analysed on precisely similar lines to those laid down when dealing with coffee, and the result was that of fifty-six samples examined, many of which were warranted pure and possessing all sorts and kinds of charming qualities, eight only were found to be genuine. Sugar was present in forty-three samples, its amount varying from 5 almost to 50 per cent., and starch was found in forty-six samples, its amount varying also from 5 to 50 per cent. The starch was derived from wheat-flour, potato-flour, sago-flour, or a mixture of these in varying proportions.

Passing over the enquiries made into the purity of opium, tobacco, and certain invalid foods as being hardly germane to an inquisition held upon the food stuffs of the people we come to tea. Tea formed the subject of a very lengthy and exhaustive examination. The leaves of the common willow, oak, sloe, hawthorn, elder, beech, elm, and an inferior sort of camellia were depicted side by side with illustrations of the genuine leaf of the tea-plant. Thirty-five samples of black tea bought at random in London shops were then analysed. Out of this ordeal the popular beverage emerged satisfactorily by comparison with the results found in the cases of coffee, arrowroot, and cocoa. In all thirty-five samples as imported no other leaves but those of genuine tea were found, but twenty-three only were perfectly pure, twelve having been treated with blacklead, indigo, turmeric, and mica, these last iridescent particles being added to give a sort of glaze to the leaves. No gross adulterations were detected, but lest these reassuring results should blind the public to the possibility of the same being practised an account was added of the trial, instigated by the Excise, of a man and his wife for the manufacture of spurious tea. In this case the inspector under the Excise Act found the prisoners on premises at Clerkenwell busily engaged in their nefarious trade. There was an extensive furnace in one of the rooms, before which was suspended an iron pan containing sloe leaves and "spent" tea leaves which had been purchased from coffee-shop keepers. On searching the place an immense quantity of these spent tea leaves and bay leaves were found, as well as every description of ingredient likely to be employed for the purpose of illicit manufacturing of tea—such, for example, as gum, copperas, and blacklead. There was a very large quantity of spurious tea in the room of the exact appearance of genuine tea, and in another room were nearly 100 lb. of re-dried tea leaves, bay leaves, and sloe leaves spread out to dry. The practices revealed in this case were commoner, Wakley considered, than would appear probable by the results of the analyses of the Commission. He believed that such wicked fabrication was very extensively practised, old leaves purchased from coffee-houses and restaurants being the chief stock-in-trade. These leaves were treated with gum and mica to give richness and bloom to the appearance of the mess and sulphate of iron to add

astringency to the decoction. Chestnut leaves and sloe and bay leaves were occasionally used to give bulk. In this investigation, it may be added, twenty specimens of green tea were examined, when it was found that the whole of them were artificially coloured.

In twenty-six samples of milk fourteen were adulterated, the addition being simply water. It was not found that any more complicated form of adulteration was practised, such as the simulation of creaminess by the addition of sheep's brains or flour.

Isinglass and gelatin were examined, with the result that each was found to be sold to the public for the other, in spite of the fact that they possess different qualities and that as a rule isinglass is better than gelatin. Thirty-three samples of vinegar were examined and the amount of acetic acid contained in them was found only in twenty-three cases to reach the standard laid down by THE LANCET as necessary to constitute a good vinegar. The addition of 1 part in 1000 of sulphuric acid was permitted by law, but many of the specimens exceeded the legal limit.

Spices next engaged the attention of the Commissioner, and out of twenty-one samples of ground ginger fifteen were found to be adulterated, the substance detected being sago flour, potato-starch, wheat-flour, ground-rice, and cayenne pepper, mustard husks, and turmeric. In whole cinnamon of twelve samples seven were found genuine, while the other five were examples, not of adulteration, but of calm substitution, for in each case the thing sold as cinnamon proved to be the vastly cheaper cassia. In powdered cinnamon of twenty samples six were genuine; three consisted entirely of cassia and ten were adulterated with baked wheat-flour, sago-flour, and arrowroot. It is significant to note from Maculloch's Commercial Dictionary that the heavy duty on cinnamon caused the consumption of cassia in the United Kingdom to rise to treble its former amount between the years 1820 and 1840. Examination of eighteen samples of nutmegs, despite fables of Yankee astuteness in manufacture, showed them all to be genuine. Mace, cloves, and allspice came out of the ordeal in a similarly handsome manner. Of twenty-one curry powders nineteen contained ground-rice, flour, salt, and colouring-matter—red lead, for example—in varying proportions. Thirty-four samples of bottled fruits and vegetables were all artificially coloured with copper. In twenty-eight samples of anchovies seven were not anchovies at all, two contained some genuine among the spurious fish, while the brine of twenty-three samples was charged with Armenian bole or Venetian red. Various potted meats and fish and sauces were examined and in many of them colouring matter was found to have been introduced. In thirty-five samples of preserves and jellies thirty-three were found to contain copper, and it was suggested that the copper saucepans in which they were prepared were responsible for this.

Many of these examinations—for example, those on such important commodities as coffee and bread, were repeated from time to time, and their results as given showed that matters greatly improved in London during the institution of THE LANCET Commission. In 1857 the investigation was carried into certain provincial towns. Among others, Birmingham, Manchester, Liverpool, and Leeds were visited, and the results of investigations in these cities led to the conclusion that London was worse supplied with the necessities of life than the large provincial towns; but in 1858 adulteration did not exist to more than one-tenth the extent that it had done at the opening of the Commission. Despite the success of his undertaking, however, Wakley declared that he had no intention of abandoning the subject until effective legislation had been secured.

He had not long to wait, and THE LANCET Commission was a prelude to all our present laws in respect to the adulteration of food. The popular excitement created by the revelations of the Commission transcended even Wakley's enthusiastic expectations and made legislation against such abuses a matter of immediate importance. A Select Parliamentary Committee was appointed and entered upon its labours in 1855. It examined as far as possible all those likely to have any special knowledge of the known adulterations, the methods necessary to detect them, their injury to the public health, and their effect on the national revenue. The evidence given before this Select Committee confirmed the researches of THE LANCET Commission, not only in spirit, but in detail, and as a result the first general Adulteration Act was drafted and became law in 1860. This is known as Mr. Scholefield's Act. Its first section enacted that every person knowingly selling food or drink mixed with any ingredients injurious to health, and every person selling as pure any article of food or drink which is adulterated, should for every such offence on summary conviction pay a penalty not exceeding £5 with costs. Wakley was but moderately satisfied with this Act. The measure dealt with adulteration in but one of its aspects—namely, as it affected health; it did not touch upon the broader question of fraud. Wakley doubted if the small pecuniary penalties proposed to be inflicted by the Act would be deterrent, and pointed out that the appointment of analysts was left by the Act entirely optional. As the district boards and town councils empowered to make the appointments were largely composed of the very class of tradesmen who were the chief gainers from the practice of adulteration, he thought it probable the power would not be used. Future legislation, he said, was imperative, and his words were confirmed some ten years after his death. A second Act was passed in 1872. A second Select Committee sat in 1874 to inquire into the working of the two Acts, Mr. Scholefield's and that of 1872, under which many technical difficulties had arisen, and the result of this second committee was the Sale of Food and Drugs Act, 1875 and 1879. All this train of admirable legislation was the direct outcome of Wakley's Analytical Sanitary Commission.

(To be continued.)

THE MIDDLESEX HOSPITAL.—A meeting of the quarterly general court of governors was held on Nov. 26th, Mr. T. W. Nunn in the chair. A *précis* of the transactions of the weekly board was read, from which it appeared that the plans for building the new cancer wing had been prepared and the estimates were now under consideration, but that there was still a considerable sum of money required for the building. The trustees of Mr. Henry Delmar's estate had made an annual subscription of £100 towards the maintenance of the cancer wards. Mr. Bancroft had by his reading raised the sum of £300 for the benefit of these wards. Mr. Larkins, J.P., was appointed a vice-president of the hospital. The subscriptions received during the past quarter amounted to £415 13*s*. The number of patients treated had been 479 medical and 602 surgical, whilst 12,963 out-patients had been seen, these patients attending altogether 30,002 times.

THE DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society was held on Wednesday, Nov. 25th, the President, Dr. J. F. Payne, being in the chair.—Dr. Stowers read notes of the Sequel to a Case of Morphœa and described the improvement which the patient had made under treatment.—Dr. Abraham read a paper on Insect Larvæ in the Human Skin and referred to several cases in his practice.—Dr. Harrison of Bristol made some remarks on Blood Erythema and described the case of a surgeon who always suffered from an erythematous eruption after any arterial blood had spurted upon him; he was also very sensitive to the smell of blood. The following cases were shown:—Dr. Abraham: (1) Lichen Planus with Tinea Versicolor; (2) Alopecia due to Tinea; and (3) Recurrent Lupus treated with Thyroid Feeding.—Dr. Stowers: (1) Prurigo; (2) Lupus Erythematosus; and (3) Alopecia.

THE LANCET.

LONDON: SATURDAY, DECEMBER 5, 1896.

THE General Medical Council, after sitting seven days, rose on Tuesday last. It did much business and it left much undone. Composed as it is for the most part of busy men who leave their various occupations of teaching or practice to attend the sessions, it is not surprising that at the end of a week excuses more or less good are forthcoming for postponing any business that remains unfinished. The November meeting is in theory specially devoted to penal business as the May meeting is to matters of medical education. But as a matter of fact no such fine line of demarcation is found to be practicable, and at both the one and the other penal and educational business receive attention. Penal cases have been heard at this session, but the great subject of the penal action of the Council and the processes by which it is exercised, about which there is a great deal of difference of opinion in the profession, has been deferred for consideration at the next meeting. So, also, have several reports of dental examinations by Mr. TOMES, which raise important questions, and are the more interesting as being the first reports of a distinct specialty—the only one so far recognised by law and having assigned to it a separate registration. There was time, however, found in the last hours of the sitting for a lively passage of arms on a fundamental question between the representative of the Royal College of Surgeons of Edinburgh, Dr. HERON WATSON, and Mr. BRYANT, the representative of the sister college in England. The point was the obligation of a body to acquire the sanction of the General Medical Council for changes in its curriculum. Dr. WATSON, or rather his College, charged the Royal College of Surgeons of England with an intended change in its curriculum, letting in candidates for its dental diploma with too little anatomy, with requiring no special teaching in clinical medicine and materia medica, and with doing this without acquainting the Council. Mr. BRYANT, rightly, we think, vindicated the power of bodies to determine their own curriculum. The Council has, of course, the power, if it finds such curriculum inadequate, to represent the same to the General Medical Council.

The penal cases brought before the Council supply material for much reflection. They show that unqualified assistants are employed on a large scale in the colliery districts of the North of England and of Wales and that the medical man is often not a free agent in their employment. He is more or less overruled by the committees of colliers, who have no appreciation of the value of diplomas in medical qualification, and, indeed, often show, as in one of the cases before the Council, a decided preference for unqualified assistants. The dictation of uneducated laymen has been shown to be a real evil in medical aid associations, but it has seldom been so strongly shown as in the case of Mr. DAVIES, who gave his evidence with commendable candour and entirely submitted himself to the judgment of the Council. In all the cases which came before the Council an absolute promise was given to dispense with unqualified assistants, and as a result no removal for the offence of covering was made from the Register. It was shown that such assistants saw patients on a considerable scale and attended midwifery not necessarily of the simplest sort. But the most serious evil brought to light was the extent to which they supplied material for the registration of deaths—not, indeed, in the form of the regular certificate of the cause of death contemplated by the law, but in the form of irregular notes to the registrar, who accepted them wholesale, as if medical certificates. The same loose and informal certificates were shown to be accepted by benefit clubs of all sorts. And, more serious still, such behaviour on their part is not quite illegal. The registrar has power to accept such notes. The Council was well advised in determining to represent to the Registrar-General and the President of the Local Government Board this state of matters and to press on the medical practitioners brought before them the duty they owe to the law and to the profession, not only to attend grave cases themselves, but to see to the certification of the death in every case having such a termination. The Council has it in its power to do great service by exposing these evils and so helping Sir WALTER FOSTER and those who seek to bring all death certification under medical authority. The Council, as we have said, on this occasion removed no practitioner from the Register for the improper employment of unqualified assistants, chiefly, we fear, from the consideration that such irregularities of practice have a certain sanction of custom in large districts of the country; but there is a growing conviction that this sanction of custom must have notice to cease and determine, and that those who disregard the warnings of the Council must meet with stern treatment.

Elsewhere we make notes of certain incidents in the work of the Council. Here we have only space to notice another great question on which there was an important debate, though for the present it will have no very practical result. We mean the subject of over-examination raised last session by Mr. TEALE, which was then referred to the Examination Committee. It is confessedly a subject of great difficulty, and what naturally makes the Council more reluctant to concur in hasty alterations is the fact that we are only now beginning to test the working of the five years term of study. It is obviously, as Mr. THOMSON said, undesirable for the Council to make too frequent changes in its recommendations. Both teachers and students would be disconcerted if a certain continuity of system is not secured. Still, Mr. TEALE, who has made a study of this question for years, has done great service in directing attention to the matter. The Examination Committee, a little at a loss for remedies, we think, sought to show that the rejections were mostly at the earlier period of education. But this was somewhat at variance with facts which they should have known. Dr. MCVAIL in his motion made one important suggestion for giving relief to the alleged tension of students in connexion with the ever-increasing exactions of the examinations by the qualifying bodies—viz., that the Examination Committee should consider how the work

and merit of the student could be certified by his own teachers, under proper supervision by an assessor. There were objections to making this suggestion the subject of a special motion, but it is a point on which the profession, if not the Council, will expect to hear a report from the Examination Committee at its next session. The subject must be kept open, and in the near future it will probably be the opinion of the Council that something ought to be done. The very things that seem to some to mean progress appear to others as reaction, and the points at issue require a little more definition before actual proposals would be wise.

THERE can be no doubt that the subject of vaccination will shortly more than ever engage public attention in this country, for the recommendations of the Royal Commission are too important to be neglected by the Legislature. It will, therefore, become all the more necessary to widely and earnestly proclaim the utility of the practice in some such manner as has been lately suggested to us by a correspondent in the West of England. He points out, what is only too true, that in the matter of public propagandism the anti-vaccinationist has the field to himself. His fervent oratory and facile pen have been employed for years past in wearisome iteration of statements, many of which are almost too absurd for refutation, but which no one takes the trouble to refute. Our correspondent refers in particular to the part played in this one-sided campaign (where the public are led to believe that there is absolutely no case *for* vaccination) by a medical man who also hails from the west country. This gentleman delivered an address in the usual perfervid style at Gloucester in the early part of the year, little deeming that his words would so soon be practically and terribly contradicted at the expense of many of those who cheered them then. It passes comprehension that after this sad experience he should have been welcomed by these same people with whom he has now taken up his abode. To be sure, the city of Gloucester is likely to be free from small-pox for a generation, even although it may under his guidance revert to its former unprotected state, for the irony of the situation is that it may be now reckoned to be "well vaccinated" owing to the energetic if tardy recourse to vaccination whereby the epidemic was stayed.

But whilst the anti-vaccinationist may rest secure in Gloucester and cherish the belief that his advent will be the reason for the immunity of the city in the future from a re-invasion of small-pox, his words remain, and we are informed that they are still being read in other parts of the country and accepted as true and unbiased. It is for the object of opposing reasonable arguments to such misleading pamphlets that our correspondent pleads, and we agree with him that the time has come for those who know how reasonable the belief in the efficacy of JENNER'S practice is to attempt to reach the public ear and demonstrate the fallacies of the anti-vaccinationist attack. But there need be no imitation of the tactics employed by these opponents to a beneficial practice. They have not hesitated to lampoon the memory and defame the character of JENNER and to slander the medical profession, not to mention their systematic perversion of statistics and of recorded facts. The subject is not one for treatment by sarcasm and jest, as in the address which tickled the ears of the groundlings of Gloucester. The efficacy of vaccination is a great fact and cannot be destroyed by jeers and gibes. We venture to think that if all the evidence, oral and documentary, which was adduced before the Commission could be digested and properly arranged, evidence which proved to the members of the Commission that vaccination was efficacious in preventing small-pox, in mitigating its attacks, in diminishing its fatality,—if, we say, this could be presented in compact and readable form it might constitute a valuable means of public enlightenment. The summary given by the Royal Commission in their final Report, which should be studied by all medical practitioners, is almost too concentrated in some particulars for the end we have in view. There is hardly an argument advanced in opposition to the utility of vaccination which could not be met from the blue-books. In view, too, of possible legislation this or some such work ought to be undertaken. It is, indeed, being done to a certain extent by the Jenner Society, founded at Gloucester by Dr. F. T. BOND, who has been performing yeoman's service for vaccination, not only in connexion with that society, but by letters to the press in confutation of erroneous statements current on the Gloucester outbreak. The task we contemplate—that of rousing the whole nation to a sense of the value and importance of vaccination cannot be entrusted to any local body. It should rather be a national movement, indeed, we are not sure that it is not incumbent on the State itself to direct it. For side by side with such propaganda on behalf of vaccination should come wise measures of legislation, better regulation of the practice, and fuller investigation into its methods. As to the question of the risks of the operation itself the Commission were convinced that they were outweighed by the gain which accrues from its adoption and, moreover, that these risks might by due precautions be minimised. This, too, may well form matter for continued investigation, for it is a rational objection, so far as the individual is concerned, that the possible future contingency of contracting small-pox, even if death be the penalty, may not be worth a present risk of septic infection.

Although we quite admit the logical position assumed by Sir GUYER HUNTER and Mr. HUTCHINSON in their addendum to the Report, and believe with them that the greatest security from small-pox is to be obtained through a general scheme of vaccination and re-vaccination, yet for our own part we do not altogether regard with dismay the prospect of the abolition of compulsory vaccination, provided that the members of the community are given every facility for being convinced of the value of the practice itself. We feel that a trust based on actual knowledge will gain many adherents from amongst those who now resent the imposition from without of a creed which in its practical application has to be enforced under penalty. The people must not be allowed to perish for lack of knowledge, and those who have the needful power should see that this knowledge is imparted to them. Therefore we hope that the conference to meet next Monday at St. George's Hospital, where JENNER himself was a student, may result in the furtherance of a scheme of endowment of

public lectureships, whereby this much desired enlightenment may be brought about. To disseminate widely, and in a form to be clearly apprehended of the people, the truth about vaccination, established by the experiences of a century, would be an appropriate memorial to the man whose sagacity and insight revealed to the world new conceptions of disease and of its effective prevention.

CRITICISM is always salutary, whether we agree with the critic or not, and in the endeavour to see ourselves as others see us we may sometimes become conscious of weak points which might otherwise be ignored. At a recent meeting of the Glasgow and West of Scotland Pharmaceutical Society Mr. ALEXANDER LAING read a paper on the Relation of Medicine to Pharmacy. The paper appears to betray a great deal of irritation at the existence of all who come into contact with the sacred work of the pharmacist; in fact, Mr. LAING expresses his views strongly of medical men, of pharmaceutical societies, of the British Pharmacopœia and of German enterprise in so far as these individually affect the interests and the work of the dispensing chemist.

Viewing this paper dispassionately, it may be said at once that on some points Mr. LAING'S arguments appear to have fair foundation. His chief contention is that medical men use nostrums which have been largely advertised, in place of prescribing. He pays us the doubtful compliment of saying that from the Dark Ages the medical man has been surrounded by an atmosphere of marvel and a fearful regard akin to worship, and that he is beyond criticism, but he is good enough to say that, on the whole, he is faithful to the trust reposed in him. He objects, however, most strongly to the fact that within recent times, while medicine has made very remarkable progress and the tide in its affairs is at the flood and leading on to fortune, this fortune is reserved for the manufacturers of new artificial alkaloids, apt combinations of the older salts, or anything new of a taking appearance in the way of drugs. He draws a fanciful picture of medical gentlemen who are so exhausted by the difficult and arduous work undergone in diagnosing the case that they are incapable of devising a prescription and content themselves with ordering some ready prepared nostrum with a nice-sounding name. There is a vein of sarcasm in this which is undoubtedly partially deserved. Whatever the cause may be it is well known that in certain districts newer remedies are prescribed almost to the exclusion of pharmacopœial preparations. Mr. LAING seems to think that this may be accounted for by the visits paid to medical men by the representatives of enterprising drug houses with samples and pamphlets, although within our own experience such visitors are not invariably received with open arms. We cannot deny that there is a great deal of truth in Mr. LAING'S complaint against the use of proprietary preparations, since medical men can have no control over the mode of their preparation and can also have no definite knowledge of their composition.

From the subsequent discussion it was evident that the Glasgow chemists considered there was a growing tendency to ignore pharmacy in the education of medical students, while medical men were freely charged with learning their therapeutics mainly from the advertising columns of the medical journals. It was even admitted that an article which was advertised for a long time might have a certain vogue and then drop out of existence; and here it becomes interesting to inquire who puts temptation in the way of medical men? If medical men derive their knowledge from advertisements, do they not also by discontinuing the use of some new remedy express the loss of their faith in the statements originally made in the advertisements? In point of fact, it seems as though the very men who complain may as a class be largely responsible for the craze for new remedies. Although the individual manufacturer may feel aggrieved by changes of fashion, these changes are surely largely the result of the enterprise and work of the pharmaceutical chemist. If, as has been frequently asserted, a great change is coming over the nature of the prescriptions given by medical men—if, in fact, the old prescriptions of mixture and pill are more or less things of the past, it is surely through the advances that have been made by pharmaceutical chemists that they have been ousted from their position. Many of them undoubtedly were nauseous and unattractive, and it might be open to question whether the increased training of medical students in pharmacy would do much to remedy these defects or would convince the public that mixtures and draughts are preferable to equally efficacious and more attractive preparations.

The reader of the paper has let his subject run away with him, and in his remarks on the British Pharmacopœia he was speaking without due knowledge of the steps that are being taken by the General Medical Council in the compilation of the new edition. Pharmacy should really be the handmaid of medicine and should assist the efforts of medical men by improved methods and new researches, instead of wasting its energies in querulous complaints.

Annotations.

"Ne quid nimis."

INFECTION BY OYSTERS.

ALTHOUGH the recent report of the Local Government Board on oyster culture in relation to disease, which has been issued in the form of a supplement to the annual report, has brought to light certain serious discrepancies in the methods of growth and cultivation and storage which, in the interests of the public, should at once be removed, yet the report on the whole is reassuring. Certainly in the light of bacteriological inquiry the recent alarm which was set on foot some time ago does not find that justification which at first appeared inevitable. The worst feature in the report is to be found in that portion of the enquiry ably undertaken by Dr. Bulstrode, who made a most elaborate investigation into the conditions under which oysters are cultivated and stored along the coast of England and Wales. As to the report by Dr. Klein on the bacteriology of oysters Dr. Thorne Thorne in his introduction says "that any expectation, that by differential testing in the laboratory of samples from consignments of oysters of diverse origin trustworthy instruction might be got as to consignments which had and consignments which had not come from quarters

where the local oyster business was carried on under hazardous conditions, failed to be realised." Again, "Taking the presence of bacillus coli on or within oysters as affording some index of recent subjection to sewage contamination, Dr. Klein's investigations, though interesting and instructive, proved on the whole disappointing." The bacillus coli was not found by him under conditions when its presence might be fairly expected, while the typhoid bacillus was only detected in a single instance in any oyster out of a number that had been unquestionably stored in relation with sewage, and this was a deep-sea oyster undoubtedly contaminated by objectionable methods of storage. It is an open question as to whether bacteriology, at any rate in its present stage of development, can afford a safe means of deciding the reproachable or irreproachable character of a given mollusc. Dr. Thorne Thorne, adopting the phraseology of the late Sir George Buchanan, when he summed up the question as to whether chemistry could be relied upon as a guide to determining the purity or impurity of water, records as the outcome of the inquiry as to the culture of oysters the following: "The bacteriologist can, in brief, tell us of impurity and hazard—often, indeed, of the precise nature of specific hazard—but not of purity and safety. For information about these we must go, with the aid of what the bacteriologists have been able to teach us, in search of the conditions surrounding and affecting the culture and storage of oysters along our coasts." Dr. Klein's report, however, is full of interesting observations. For example, it is shown that both the typhoid bacillus and Koch's vibrio may persist for two or more weeks in sea-water, and, further, that whereas the former is not prone during such period to undergo any biological change or modification of its physiological activity the latter soon tends, at any rate in the presence of oysters, not only to vary in its morphological and cultural features, but also to become despoiled in part of its hurtful properties. Whilst fully prepared to admit, therefore, that the bacteriological examination has borne much fruit, still it is a close inspection of oyster beds and of the modes of culture and storage of oysters, and the study of their environment, which have led to any really practical conclusion. This conclusion is summed up by Dr. Bulstrode when he says that "speaking in general terms, it has to be said that in the past the proximity of sources of pollution has not been taken account of in selecting places for the laying down or storage of mature oysters, and that, therefore, restrictions and regulations, which to be of use should be retrospective in effect, are necessary in order that the oyster industry may be carried on in future without subjecting oysters destined for use as food at an early date to danger of contamination with sewage matters."

THE HEALTH OF DR. JAMESON.

THAT Dr. Jameson's condition is one that gives anxiety to his professional attendants, to those responsible for his care, and to the large public interested in all that concerns the late Administrator of Rhodesia, is evident. But many of the rumours now rife point to a more serious condition of affairs than really exists. Dr. Jameson has suffered from hæmorrhoids for many years, and on one or two occasions has had recourse to surgical interference with no radical result—indeed, his symptoms would appear to have been aggravated rather than alleviated by previous operations. From the commencement of his imprisonment the symptoms due to his distressing malady became aggravated by insufficiency of exercise, and regular resort to the use of purgatives became an unpleasant necessity, while for the last month his diet has been mainly, almost exclusively, milk and beef-tea. About a fortnight ago a painful fissure necessitated the surgical treatment which had been previously urged upon him, but to which he had hitherto refused consent. Permission was obtained from the Home Office for Mr. Herbert Allingham to visit him in prison, and on Thursday, Nov. 19th, the usual operation to relieve the condition was successfully performed. Since the operation Dr. Jameson has failed in general health, this unfortunate occurrence being due to his environment; and the Home Office, comprehending that although the patient was in no sort of immediate risk it would be dangerous and cruel to keep him longer incarcerated, agreed to his release at such a time as his medical attendant might consider advisable. His digestion has failed, he is troubled by sleeplessness, and has no reserve of strength to draw upon at a time when he most requires it. This is a grave condition which might easily have become more grave, and all classes of the community will receive with pleasure the information that he has been set free and is thus enabled to obtain the good nursing and small luxuries essential to his condition. Everything that was possible had been done for him within the prison walls, and we confidently expect to hear that in more favourable circumstances Dr. Jameson has made a speedy recovery.

IMPORTANT INQUIRY UNDER THE ISOLATION HOSPITALS ACT.

DURING the past year the medical officer of health to the Essex County Council has made a careful inspection of every isolation hospital established in the county and has also conducted a number of formal inquiries under Section 6 of the above-mentioned Act. The result has been that he has represented to the county council that many districts are without proper accommodation for isolating persons suffering from the more dangerous infectious diseases, and the council has instructed the sanitary committee to hold a number of inquiries under Section 7 of the Act. The first of the series was held at Leyton on the 26th ult. and gave rise to the discussion of several important points. The Leyton urban district adjoins the metropolis and has a population of about 80,000 and is rapidly increasing. Most of the residents are weekly tenants, and many cottages are divided into pairs of tenements. Under the alleged pressure of an outbreak of diphtheria the district council has just completed the erection of a wood and iron hospital. This hospital is situated at the sewage disposal works, practically overlooking the precipitation tanks, close to the refuse destructor, and near a very busy railway siding. It consists of two ward blocks, an administrative block, and laundry, standing upon about half an acre of ground. Mr. Peskett, the medical officer of health for the district, in his evidence, approved the site and stated that he had treated numerous cases of scarlet fever in an adjoining house, which had been used as a temporary hospital, without any evil effects. He considered the hospital adequate for their present requirements as it afforded accommodation for fifty patients, allowing 1200 cubic feet of air space for each. This cubic space he deemed sufficient since most of the patients admitted were children. Dr. Thresh strongly objected to the site and said that he could not regard the hospital as anything but a temporary one. Allowing a minimum of 2000 cubic feet for each bed there was only accommodation for thirty patients and this he considered far too small for such a district. No provision had been made for small-pox. He urged that as it had been admitted that there was no possibility of obtaining another hospital site within the district, a combined district should be formed including Leyton, Walthamstow, and certain smaller districts around. The evidence given was of a conflicting character. One local practitioner described the odours arising from the sewage tanks as being at times

abominable and he would refuse to send his patients to the hospital; while another considered the smells as being unobjectionable and suggested that when the moon was shining on the tanks it was like being at the seaside! The objection on account of the noise arising from the shunting was met by the assertion that the patients soon got used to it. The report of the County Council upon the results of the inquiry will be awaited with interest, but it seems certain that a more objectionable site for an isolation hospital it would be difficult to select and that the accommodation provided is in every respect inadequate for such a district. The effective isolation of patients suffering from infectious disease in the populous districts surrounding London is of great importance, and it is to be hoped that the Essex county council will fully endorse the report of its medical officer of health and direct a proper isolation hospital to be established for the use of Leyton and the adjoining districts.

THE WATER QUESTION AT CHICHESTER.

THE drainage works in the city of Chichester have led to a protracted dispute and much party feeling which has even now only just died down. The water question terminated in a poll of the city. The question was one of acquiring the works, at a price practically agreed upon, of the private company which now supplies the district. A majority of the corporation decided in favour of the purchase and signed an agreement with the company, who made certain arrangements in the matter. Afterwards it was discovered that a two-thirds majority of the council was necessary, and this the purchase party could in nowise obtain, so matters were at a deadlock. The council by their action had laid themselves open to legal process (so it was urged) if they did not follow up their agreement and the negotiations for purchase. Yet the minority would not give in. Special meetings of the council were called, and at length, upon the mayor's pointing out that a two-thirds majority would only mean that the matter would go before the ratepayers for their final decision, the necessary majority was obtained. The poll of the city was taken on Saturday and resulted as follows: For the purchase, 1002; against, 823; majority for, 179; 436 blank papers were returned and 105 rejected. So the ratepayers' poll has been fairly decisive, and the way seems clear to the municipalisation of the private monopoly.

THE RESPONSIBILITY OF HABITUAL DRUNKARDS.

IT is no simple matter in many cases to define the point at which habitual drunkenness merges in alcoholic insanity and it is this difficulty which principally interferes with the effectual treatment of either condition. The subject was recently noticed by Dr. Robert Jones of Claybury Asylum in a report to the London County Council on the treatment of inebriate lunatics. This class of inmates, it need hardly be said, is not the most welcome in public asylums. Its influence upon the insane from other causes is not salutary, the restraint which its therapy entails imparts an undesirable element of treatment, and its temporary recoveries are certain to be misused for self-indulgence when liberty is regained, with the inevitable result of further brain deterioration. We cannot but regret with Dr. Jones that means have not so far been devised to compel the restraint, during their quasi-lucid intervals of freedom and apparent responsibility, of these unhappy persons. To do this, outside of ordinary asylums, would, indeed, impose no light burden on the means of relatives or, failing these, on the public funds, as the formation of a distinct class of institutions would have to be provided for. It does not follow, however, that we need remain helpless. The work of restraint can now be carried out, even if in a somewhat disconnected manner, by means of our existing social machinery. In the case of actual violence the common law is available for the protection of the inebriate's family. When alcoholism has passed into lunacy the asylum is open to him. There still remains, however, a difficulty which has not been overcome by legislation in the question of responsibility for the management of property and business. Here there is clearly occasion for the interposition of law. A man—a husband, it may be, and a father—is practically incapable for days or weeks together, yet he cannot be compelled to surrender his wholly visionary privilege of neglecting every social and domestic duty, even though this involve the ruin of his family. Surely some system of compulsory trusteeship should be permissible in such a case as this. Every reasonable allowance would naturally be made for the just claims of the inebriate, but a transference of his abused privileges is alone compatible with his own happiness and that of persons dependent on him. It must not be forgotten that the condition which we have here to contend with is one of disease and not of mere caprices or differing opinions, and that the compulsory surrender of essential duties which have become impossible of fulfilment implies no tyranny but an obvious benefit to all concerned.

RESULTS OF PARTIAL SECTION OF THE GLOSSO-PHARYNGEAL NERVE.

S. MEYER has published an inaugural dissertation and an article in the *Archiv für Mikroskopische Anatomie* giving the results of some experiments he has made upon the glossopharyngeal nerve. He effected partial division of this nerve in young rabbits, and thirty hours after the operation observed a commencing conversion of the neuro-epithelial cells of the taste-buds into laminated epithelium. The process of change first made its appearance in the lowermost buds, then affected the uppermost, and finally exhibited itself in the middle buds of each row. There did not appear to be any cell destruction, but simply an alteration in the characters of the cells now no longer under the influence of the nerve. After about twelve days the last remains of the gustatory bulbs disappeared and the grooves of the circumvallate papillæ began to be filled up with laminated flattened epithelial cells. The epithelium at the bottom of the furrows presented numerous leucocytes distributed amongst the cells, which in part escaped through the original openings of the cells. The only change in the peripheral portion of the divided nerve was simple degeneration.

THE PROPOSED QUEEN'S COMMEMORATION FUND.

THE proposal that a fund should be raised to commemorate the reign of Queen Victoria by extending and consolidating the work which has been carried on for the past six years under the direction of the Jubilee Institute for Nurses, the initiation of which was due to Her Majesty devoting £70,000 of the Women's Offering "for the special work of training nurses to tend the sick poor in their own homes," will doubtless command much sympathy and support. The influentially signed appeal recently published in the press pointed out the need for some large pecuniary assistance if the work is to continue to be carried on in a manner adequate to the needs of the country. There can be no two opinions upon the benefits accruing to the poor of a well-organised system of district nursing, and the medical practitioner should find in the extension of this scheme very material assistance in the efficient treatment of his poorer patients. It is, we understand, a cardinal principle of the Institute that the nurses shall only act under the direction of a medical man, and we trust that the control exercised by the Institute is of such a nature as to secure the carrying out

of this condition. Otherwise we fear that through mistaken motives of charity the Jubilee nurse in a remote country district may be liable to be sent to "look after" a patient without the cognisance of any medical practitioner. It would be most unfortunate if the fulfilment of an object so worthy and so considerate should be imperiled by any fostering of independent action on the part of the nurse. District visitors and the like must always remember that any sufferer who requires the attentions of a sick nurse is primarily in need of the advice and direction of a medical man. We say this in no spirit of cavil at the work of an institution for which indeed we have the highest regard and which is likely to prove a fitting memorial of the reign of our beloved Sovereign.

THE PORTSMOUTH LUNATIC ASYLUM.

SOME little time ago the Asylum Committee at Portsmouth appointed as medical superintendent Dr. Mumby, the borough medical officer of health. We felt constrained to protest against the appointment, as Dr. Mumby, although a most admirable and experienced officer of health, had had no experience in lunacy. We see that the chairman of the committee is now advertising for an assistant medical officer, one with "some previous experience in an asylum preferred." If the superintendent has no previous experience—and we believe that this is undisputed—and it is not *necessary*, but only *preferable*, for the assistant medical officer to have any, we cannot help thinking that the 600 or 800 lunatics in the Portsmouth Asylum will not be placed in the best position for either cure or amelioration.

DEATH OF A FOOTBALL PLAYER FROM TETANUS.

MUCH commiseration has been shown in football circles at the death of Joseph Powell, a member of the Royal Arsenal Football Team, in consequence of an accident which occurred during a match at Kettering on Monday, Nov. 23rd. The injury consisted of a compound fracture of the left radius and ulna. This was attended to on the ground by some persons who were said to be qualified to render first aid to the injured, one of whom seems, however, to have fainted at the sight of the protruding bone. Mr. Dryland, of Kettering, subsequently syringed and disinfected the wound, putting it up in splints with iodoform and blue gauze. When seen the same night by Dr. R. E. Williams, of Woolwich, the surgeon to the Arsenal club, the temperature was slightly elevated, but there was no symptom to cause alarm. The wound was carefully cleaned and dressed and moulded splints applied the next day, but on the morning of Nov. 27th slight symptoms of tetanus presented themselves. Chloroform was given and the wound opened and scraped and scrubbed out. Dr. Williams then obtained all the tetanus antitoxin that he could get and immediately injected it. The next day the condition of the patient, which had appeared at first to have improved under the injection, became worse and Mr. Symonds of Guy's Hospital was called in, who decided to amputate above the elbow. More antitoxin was obtained and injected and the patient was kept absolutely still, as even swallowing a mouthful of water brought on a convulsion. Death, however, occurred very suddenly, with only a slight spasm, on the morning of the 29th. At the inquest, which was held on Wednesday last, evidence was given that the accident was due to Powell's foot lighting on his opponent's shoulder after a flying kick when the ball was high. The ground was sloping, and Powell fell heavily on his left arm. The jury unanimously expressed their appreciation of the great care and skill with which Dr. Williams had attended to the deceased. Dr. Williams mentioned that the anti-tetanus serum appeared to be most difficult to obtain. We understand that he was only able to procure 60 c.c. on the Friday and a similar quantity on the Saturday. Of this 20 c.c. were injected on Friday night, 10 on Saturday morning, 20 in the evening, and the remaining 10 late the same night.

THE HEALTH OF SIR WILLIAM MAC CORMAC.

SIR WILLIAM MAC CORMAC continues to progress favourably. Both the local and the general condition show further marked improvement during the past week. The temperature keeps quite normal. He is able once more to sit up for a short time each day.

OXFORD MEDICAL SOCIETY.

AN address will be delivered before the Oxford Medical Society by Mr. William Macewen, M.D. Glasg., F.R.S., Regius Professor of Surgery in the University of Glasgow, in the theatre of the Department of Human Anatomy, University Museum, Oxford, on Friday, Dec. 11th, at 5.30 P.M. Subject: Abscess of the Lung. The meeting will be open to all practitioners and students of medicine.

BEATTY *v.* CULLINGWORTH.

IN another column will be found a letter from Dr. Theodore Acland and Mr. Bernard Pitts with reference to the formation of a fund intended to help Dr. Cullingworth in the payment of expenses incurred by him in the recent action. We need say no more than to recommend this fund most warmly to our readers. Here is a man who did, at great personal inconvenience, without fee, what he thought best for his patient under very difficult circumstances. And what has been his reward? Vilification and a fine of some £1000 spent on his legal defence.

THE SEQUEL OF A HEAD INJURY.

THE case of an old woman who recently died in Birmingham, after being knocked down by a parcels van, and whose death formed the subject of an inquest, has raised questions of suggestive interest to the practical surgeon. After the injury, which was due partly to her deafness and partly to her being drunk, she was taken to the General Hospital and there examined by the resident surgeon. A scalp wound was found on the right side of the forehead but no fracture. No signs of cranial or cerebral injury appear to have shown themselves. The wound was therefore dressed and the patient given over to the police to be taken to her relatives. This arrangement was not carried out, however, and owing to a misunderstanding she passed a restless night in a police cell, was worse the next day though able to walk, and was sent to the workhouse infirmary where she died on the following day. A post-mortem examination, while it revealed no fracture at the site of the scalp injury, showed that intra-cranial hæmorrhage had taken place and that death was due to this cause. The case was clearly a hopeless one from the first, and the only question on which any difference of opinion could exist was whether she should, or should not, have remained in the hospital when first taken thither. It is always easy to be wise after an event, and we might, if disposed, being thus wise, ignore the perplexities of diagnosis and the possibilities of treatment and suggest that in this instance a patient who, besides the proof of drunkenness, presented only the signs of a comparatively trifling injury was wrongly dismissed to her home. The coroner's jury declined to adopt this course, and we consider that they acted wisely. Censure can in no way attach to the resident surgeon, who was guided in his decision by the only evidence obtainable at the time of the patient's admission. The incident nevertheless suggests the wisdom of even hazarding an error on the side of precaution in cases which present a history of a severe blow to the head and of placing them for, say, forty-eight hours under medical

supervision. Though the application of this rule in practice may in many instances imply the detention of persons not gravely injured in hospital and a consequently increased liberality on the part of the public by, and for, whom hospitals are supported, we would in the light of such facts as those above recorded be disposed to advise it.

THE SURGICAL TREATMENT OF EPILEPSY.

AT a recent meeting of the American Neurological Association a paper was read by Dr. Sachs and Dr. Gerster on the Surgical Treatment of Focal Epilepsy with an Analysis of the Result in Nineteen Cases. The list included cases due to traumatic injury and those associated with infantile cerebral palsies, but excluded epilepsy due to tumour. The analysis shows that three patients were completely cured, two greatly improved, and three somewhat improved, while in eleven cases there was no improvement whatever. In the cases benefited the operation was performed within a period of two years after the traumatic injury or beginning of the disease. The writers' views were summed up in the following conclusions, which we have slightly abridged. 1. That surgical interference is advisable in those cases of partial epilepsy in which not more than one or at the utmost two years have elapsed since the traumatic injury or the beginning of the disease which had given rise to the convulsive seizures. 2. In cases of depression or other injury of the skull surgical interference is warranted, even though a number of years have elapsed. 3. Simple trephining may prove sufficient for a number of cases, and particularly in those cases in which there is an injury to the skull or in which a cystic condition is the main cause of the epilepsy. 4. Excision of cortical tissue is advisable if epilepsy has lasted but a short time and if the symptoms point to a strictly circumscribed focus of disease. 5. Since such cortical lesions are often of a microscopic character excision should be practised even if the tissue appears to be perfectly normal at the time of operation. 6. Surgical interference in epilepsy associated with infantile cerebral palsies may be attempted. 7. In cases of epilepsy of long standing in which there is in all probability a widespread degeneration of the associated fibres every surgical procedure is absolutely useless.

DISTRIBUTION OF WHITE CORPUSCLES IN THE VESSELS.

IT has been held by some observers—Rieder and Schultz amongst others—that the leucocytes are very unequally distributed through the vascular system. The subject has been worked over again lately by Sémakine,[1] who points out various reasons for considering these experiments to be unsatisfactory, especially because they took the blood for the purposes of examination from the dead animal, when it is not inconceivable that the blood in the central parts might contain more leucocytes than those in the peripheral regions of the vascular system. Sémakine's experiments were made on dogs and on rabbits in which leucocytosis and hypo-leucocytosis were artificially induced—the former by the injection of two or three cubic centimetres of a mixture of one part of turpentine to five of olive oil into the veins, the latter by the injection of five cubic centimetres of a solution containing one part of peptone in ten of water. In some of the rabbits leucocytosis was also induced by the subcutaneous injection of one part of papayotin in two hundred of water. Enumerations of the white corpuscles were also made in rabbits killed by a blow on the back of the neck and in dogs killed with chloroform. The conclusions at which Sémakine arrived were that so far as regards macroscopical vessels the leucocytes are equally distributed, so that from an examination of the blood in the peripheric bloodvessels the number of the white corpuscles in the central vessels may be determined. The same general statement holds good both for leucocytosis and for hypo-leucocytosis, the number of white corpuscles being increased in leucocytosis and diminished in hypo-leucocytosis equally in both central and peripheric vessels. In rabbits the mere fixation on the table as well as a blow on the back of the neck induces some kind of vaso-motor excitement, which causes an alteration in the number of the leucocytes to occur with extraordinary rapidity. These animals, therefore, are not well adapted for enumerative experiments of this nature. The unequal distribution of the leucocytes observed in rabbits when living is dependent upon the opening of the abdominal cavity, and the differences observed by Schultz were probably due to post-mortem changes.

[1] Archives des Sciences Biologiques, tome iv., p. 115.

TREATMENT OF MALIGNANT TUMOURS BY MIXED TOXINS.

AT a late meeting of the Johns Hopkins Medical Society Dr. Coley, surgeon to the New York Cancer Hospital, read a paper on the Treatment of 160 cases of Malignant Tumour with the Subcutaneous Injection of the Toxins of Erysipelas and Bacillus Prodigiosus. The cases reported extended over a period of four years and included almost every variety of sarcoma and carcinoma. In every case the diagnosis was confirmed by microscopic examination made by competent pathologists. The majority of the tumours had been considered hopeless and "inoperable" by other surgeons and many were recurrent after operation. Dr. Coley was led to this line of investigation by having observed that a small round-celled sarcoma five times recurrent was cured by an accidental attack of erysipelas. His first 10 cases were treated with repeated injections of living broth cultures with a view of inducing erysipelas. The marked improvement that followed the injections, even when no erysipelas was produced, especially in sarcoma, suggested that the beneficial influence was due to the toxins and not to the living germs. The further experiments were made with the toxins alone. The total number of cases of sarcoma treated was 93, of carcinoma and epithelioma 62, of sarcoma or carcinoma 10, tubercule 2, fibro-angioma 1, mycosis fungoides 1, goitre 2, and keloid 1. Of the cases of sarcoma nearly one-half showed more or less improvement, the variety most benefited being the spindle-celled, while the least improved was the melanotic. Most of the cases of osteo-sarcoma failed to respond to the treatment. It was found that the patients could stand from five to ten times as much of the agents when injected subcutaneously at a point remote from the tumour as they could when introduced at the vascular spot. Dr. Coley recommends that a minimum dose of the toxins should always be used at first and gradually increased. His general conclusions are that the mixed toxins of erysipelas and bacillus prodigiosus exercise an antagonistic and specific influence on malignant tumours, which influence in a certain proportion of cases may be curative; that the effect of the toxins is most marked in sarcoma, very slight in carcinoma, including epithelioma; and that the spindle celled form of sarcoma was by far the most responsive to treatment; while it would seem that the action of the toxins is not only local but systemic. Dr. Coley considers that the agents should be reserved for use in "inoperable" cases of sarcoma or after primary operation to prevent recurrence.

THE ROYAL SOCIETY.

THE anniversary meeting of the Royal Society was held as usual upon St. Andrew's Day in the society's rooms a Burlington House. The President, Sir Joseph Lister, delivered the annual address. After referring to the losses the society had sustained by death—nineteen Fellows and four foreign Members—he mentioned the new proposals which the Council had had under review

for the greater freedom of discussion in the meetings. The International Catalogue Committee had resolved that it was desirable to publish a catalogue in English of scientific literature of the nature suggested in the circular of the Royal Society. As to the scientific work of the society, the President mentioned Roentgen and Lennard's work with the x rays. Remarkable researches had been made by Lord Rayleigh and Professor Ramsay with the new element, helion. After the address the medals were presented as follows: The Copley Medal to Professor Karl Gegenbauer, for his researches in comparative anatomy, especially as regards the history of the vertebrate skeleton; the Rumford Medal to Professor Philip Lennard and Professor William Conrad Roentgen for their investigations of the phenomena produced outside a highly exhausted vacuum tube through which an electrical discharge is taking place; the Davy Medal to Professor Henri Moissan for the isolation of fluorine and the use of the electric furnace in the preparation of highly refractory metals; and the Darwin Medal to Professor Giovanni Battisti Grazzi for investigations in evolution—one on a Species of Sicilian White Ant and the other on the Development of the Eel. The officers and Council for the year were elected as follows: President, Sir Joseph Lister, F.R.C.S., D.C.L.; treasurer, Sir John Evans, K.C.B., D.C.L., LL.D.; secretaries, Professor Michael Foster, M.A., M.D., D.C.L., LL D., and Professor Arthur William Rücker, M.A., D.Sc.; foreign secretary, Edward Frankland, D.C.L., LL.D.; Council, Professor William Grylls Adams, M.A., Professor Thomas Clifford Allbutt, M.D, Professor Robert Bellamy Clifton, M.A., William Turner Thiselton Dyer, C.M G, Professor James Alfred Ewing, M A., Lazarus Fletcher, M.A., Walter Holbrook Gaskell, M.D., Professor Alfred George Greenhill, M.A., William Huggins, D.C.L., Professor Charles Lapworth, LL.D., Major Percy Alexander MacMahon, R.A., Professor Raphael Meldola, F.C.S., Professor William Ramsay, Ph.D., the Lord Walsingham, M.A., Professor Walter Frank Raphael Weldon, M.A., and Admiral William James Lloyd Wharton, C.B. The annual dinner was held in the Whitehall Rooms of the Hôtel Métropole, the President being in the chair.

IT is announced that the examinations for the certificate in psychological medicine of the Medico-Psychological Association will be held in London, Edinburgh, Glasgow, Aberdeen, and Dublin on Dec. 17th. Candidates should give seven days' notice to the Registrar, Dr. Spence, Burntwood Asylum, Lichfield.

WE have received from Messrs. A. P. Laurie and J. T. Leon of St. Mary's Hospital a Roentgen ray photograph of a vesical calculus *in situ*. We hope to publish a reproduction of this photograph very shortly.

THE Secretary of State for the Colonies has received a telegram from the Officer Administering the Government of Gibraltar, dated Dec. 2nd, 1896, that vessels arriving from Alexandria get free pratique.

THE lecture by Dr. Thorne Thorne, on "Oyster Culture in Relation to Disease," which was to have been delivered on Thursday afternoon at 20, Hanover-square, was unavoidably postponed.

COMPLIMENTARY DINNER TO SURGEON-MAJOR SIR GEORGE S. ROBERTSON, K.C.S.I.

A MOST cordial reception was given on Friday, Nov. 27th, at Limmer's Hotel to Sir George Robertson by his fellow students and the staff of the Westminster Hospital and Medical School. The chair was taken by Mr. George Cowell, consulting surgeon to the hospital, and amongst the visitors present were Field Marshal Sir Donald Stewart, G.C.B., Sir Stewart C. Bayley, Sir Charles Turner, Sir James Dick, Sir W. Martin Conway, and Surgeon-Major-General Jameson, the Director-General of the Army Medical Department.

After the usual loyal toasts the "Army and Navy" was proposed by Dr. W. H. Allchin and responded to by Sir Donald Stewart and Sir James Dick, the Director-General of the Navy Medical Department.

The toast of "Our Guest" was proposed by the CHAIRMAN, who called upon the assembly to express its admiration of British resource, pluck, and endurance. The defence and relief of Chitral formed a most brilliant chapter in the history of the Army of India. Surgeon-Major Robertson, as the Government Agent at Gilgit, had been sent to Chitral on a mission, and a few weeks later it had become known that he and a band of 400 British officers and native troops were shut up in the fort of Chitral cut off from all communication with the outer world. It was known also that with this gallant band of men there were rations and ammunition for barely two and a half months, and that his party must be rescued within that time or it would be too late. The history of the expeditions under General Sir Robert Low and Colonel Kelly was well known. The former and larger expedition of the two was from the Peshawur Valley and has been compared in intrepidity with Lord Roberts's famous march from Kabul to Kandahar. The advance of these two parties over the mountains in winter from two different directions, although necessarily slow, led to the demoralisation of the hostile forces and eventually to their rapid retirement from the walls, and the siege, which had been complete for forty-seven days, was raised two days before the arrival of Colonel Kelly's force. The condition of the garrison showed the straits in which it had been placed. The Kashmere troops were described as "walking skeletons" and the British officers as "white as ghosts." In proof of the severity of the attack the killed and wounded over and above the sick amounted to some 120 out of 400 combatants. It was a splendid defence, full of resource and pluck, and the survival of so many of the wounded amid such insanitary surroundings was another triumph for antiseptic surgery. Of the incidents of the defence it was only necessary to mention the reconnaissance in force to ascertain the reality of the siege, in which Captain Colin Campbell, in military command of the force, was severely wounded, and in which also Captain Baird, a most able and popular officer, was so mortally wounded that he died the next day. The heroic manner in which the latter was carried back to the fort, under heavy fire all the way, won for Surgeon-Captain Whitchurch the Victoria Cross and was an act of valour of which our profession was justly proud. The resource and watchfulness with which Sir George Robertson and his comrades combated day and night the attacks upon the water supply and numerous attempts to fire the towers, and the final sortie of Lieutenant Harley, contributed to make the defence a most successful and gallant exploit. With the mention of Sir George Robertson's connexion with Westminster Hospital and his adventurous journeys alone through Kafiristan, a part of India which he alone has explored, his health was proposed and a hearty welcome extended to him.

Sir GEORGE ROBERTSON, in returning thanks, said that he would have liked to have told something of his experiences in Kafiristan and Chitral, but those in connexion with the former place had already filled a large volume and it was probable that the doings in Chitral would fill another; but one thing he would do, and that was to express a hope that they would not allow the names of his brave comrades in arms at Chitral to be forgotten. These were Major Campbell and Major Townshend, the lamented Captain Baird, and those young officers, Gurdon, Haile, and Whitchurch. He was confident that at Ashanti, in the Soudan, and in South Africa there were many typical Bairds and Whitchurchs. In conclusion he thanked Sir Donald Stewart for the terms of approbation in which he referred to the defence of Chitral. For an Indian officer there could be no greater encomium.

The health of "The Visitors" was proposed by Mr. MACNAMARA and responded to by Sir STEWART C. BAYLEY and Sir W. MARTIN CONWAY, who both testified to the brilliancy of the Chitral defence and to the daring of the exploration of Kafiristan and the extreme interest of the volume which contained the reports of Sir George Robertson's valuable observations.

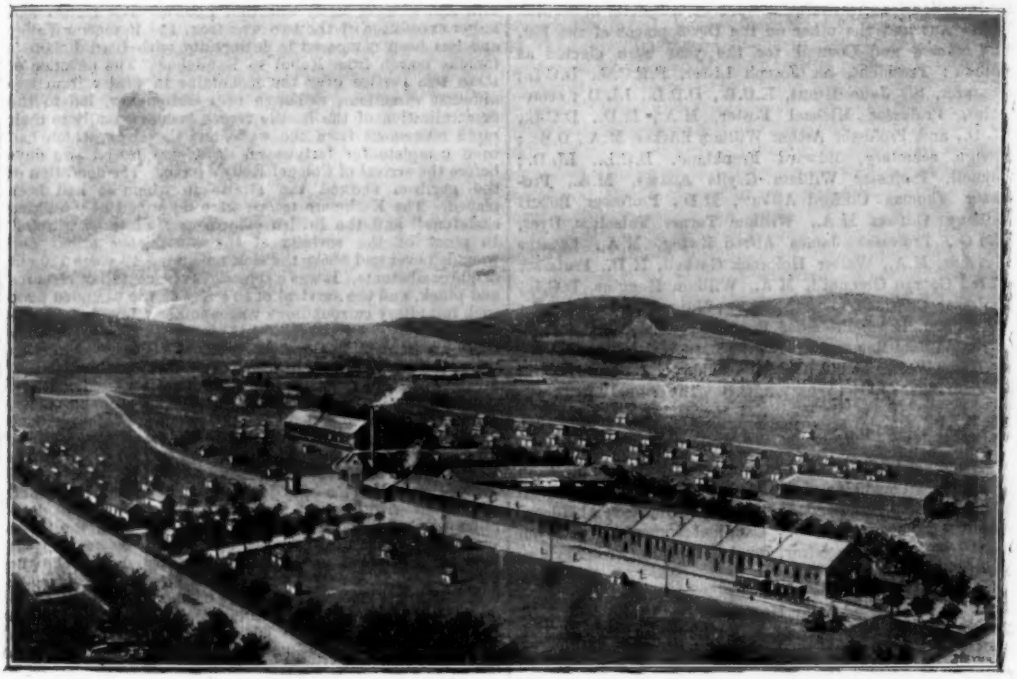
THE LANCET
Special Analytical Commission
ON
NATURAL MINERAL WATERS.[1]

II.—HUNYADI JANOS WATER.

NATURAL mineral waters of the purgative saline type have been brought so prominently before the notice of the profession of late that in the interests of therapeutics and pharmacology it is desirable that an exact knowledge of the chemical composition of these waters should be known, while it is also important that those who may prescribe them should have some assurance as to their constancy of composition and purity. A carefully conducted analysis will, of course, establish the composition and therapeutic value of the water and the relation of the constituents which it contains, and may afford, in addition, some evidence on the question of its natural origin. The evidence of chemical analysis alone and without other facts being taken into consideration cannot be regarded as affording a decisive answer to the question—Is the water a natural one? It is quite within the bounds of possibility to so imitate the chemical composition of a natural water, even in regard to the rarer constituents, as to defy differentiating by chemical means. We are not aware that such deceit is ever practised, but it is possible. To do this, however, with anything approaching exactness would involve considerable skill and trouble, especially in regard to the smaller constituents and towards securing the correct ratio of the constituents to each other. So far, then, a chemical analysis giving not only the proportion of the chief constituents, but also of those that are considerably less in amount, would afford some clue towards discriminating between a water of natural occurrence and one that is a prepared pharmaceutical product. It is, therefore, of no small importance that the practitioner should be in possession of as complete an analysis as possible of the water he may recommend, and, further, any additional evidence as to the general *bonâ-fide* character of the water and as to its purity should not be disregarded.

THE LANCET has published independent analyses from time to time of several natural mineral waters with the view of enabling the profession to judge the probable therapeutic value for themselves. To put them in possession of further facts relating to the natural source of the water is obviously difficult in the absence of any practical acquaintance of its history at the fountain head and of its surroundings, as well as of the modes of collection, bottling, and dispatch. The circumstances as to how such waters occur in nature, as to the probable origin of their constituents, as to the methods of collecting the water and distributing it are, it must be admitted, not matters of common knowledge. At any rate, it is important that a practitioner should know these details in regard to a medicinal agent which he may be constantly prescribing, and the facts concerned cannot but prove of general interest also. An opportunity has recently occurred to one of our Commissioners whilst on a visit to several of the largest cities on the continent of inspecting one of the most extensive and most widely known establishments where an unlimited supply of natural bitter purgative water of the sulphate class occurs, and the occasion is one which may be taken advantage of in presenting our readers with what we venture to think should prove an interesting account of the processes he witnessed there. The establishment referred to is that belonging to Mrs. Saxlehner and founded by her husband (the late Andreas Saxlehner) in 1863.

FIG. 1.



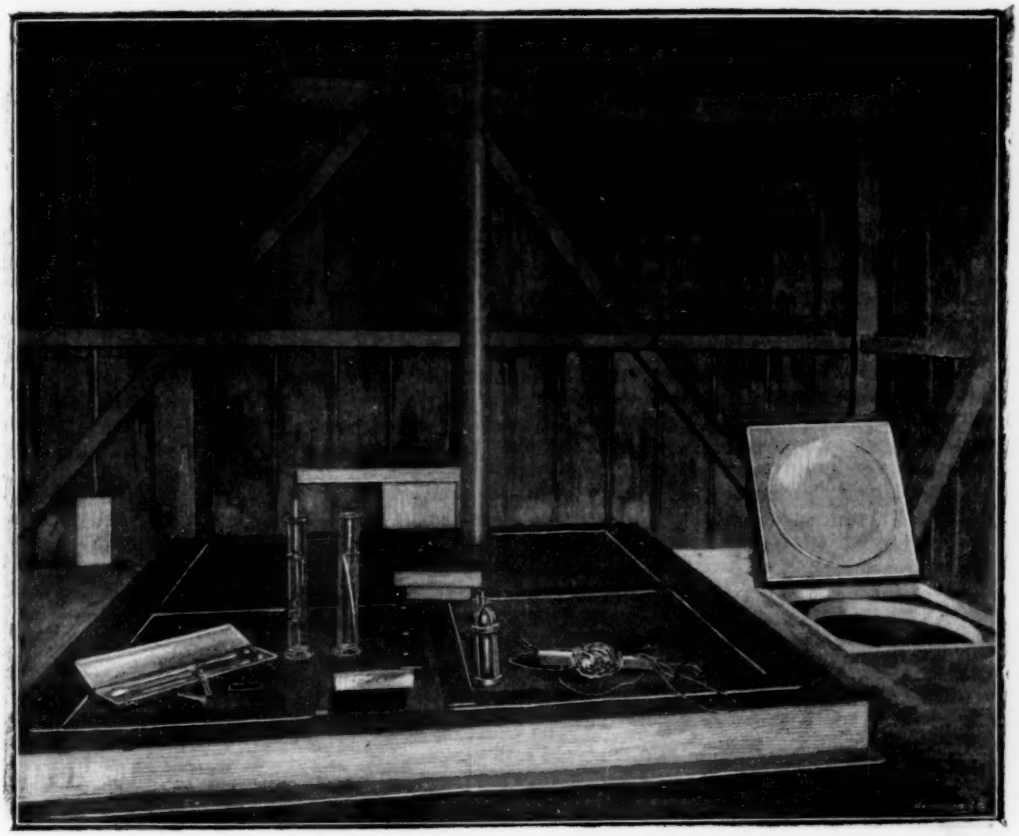
General view of the Saxlehner Springs whence the Hunyadi Janos Water is derived.

It is from the Saxlehner springs that "Hunyadi Janos" water is derived, the prototype of all bitter waters and especially distinguished by that name. Parenthetically it may be stated that the name "Hunyadi Janos"

[1] A previous article on this subject appeared in THE LANCET of Aug. 8th, 1891.

in no wise relates to the district; it is the name of a Hungarian celebrity, John Hunyadi,[2] who flourished in the fifteenth century, and after whom the water was called by its discoverer. The valley in which the Saxlehner springs are situated is known as the "Orsöd" valley, which is located a few miles south from Budapest on the right bank of the Danube. The property comprises some 280 acres, of which 120 are employed for obtaining Hunyadi Janos water, and entirely occupies the valley, which is bounded by a series of picturesque hills which may be regarded as remote branches of more rugged mountains beyond. The view of the entire establishment shown in the accompanying illustration, Fig. 1, gives a very good idea of the dimensions of the undertaking and of its situation, and is taken from the Dobogo Hill on the northern side. The wells are covered in by a wooden structure which is proof against weather, and they

FIG. 2.



Interior of well-house.

number over one hundred. The surface of the ground is practically level, is covered with luxuriant grasses, and is very soft to walk upon. The wells are shallow and in the majority of cases not more than eight metres deep, the surface of the water when the well is full being within two metres of the ground surface. Special precautions are therefore taken to prevent contaminations with surface drainage, and to this end the well is lined with strong cement about two metres deep. At the bottom is impenetrable clay. Not only are strict precautions taken against the ingress of surface water, rain, and so on, but on no account is human refuse or dejecta of any kind allowed to be disposed of on any single portion of the property. Human excreta is carried away and disposed of in Budapest in an approved way, and even the dejecta of horses is carefully

[2] Gould's Dictionary of Medicine.

excluded from the vicinity of the wells. These precautions are admirable, and the same spirit of carrying out what in the interests of sanitation and of the purity of the water is imperatively demanded obtains also in every other matter.

The interior of the well-house is seen in Fig. 2. This well, which is typical of the rest, is closed by flaps provided underneath with aluminium sheeting. There is a small square opening in the left flap which is used for the shaft of the pump and is of small size to exclude as far as possible dust and other objectionable matters. At the back of the well is a pipe running vertically, which serves to ventilate the air space in the well. The apparatus seen in the illustration to be resting on the closed flaps was part of that employed by our Commissioner in making certain tests on the spot. Thus to the left is a hydrometer case, and to the right of this again two cylinders, one containing the water with a hydrometer floating in it and the other a thermometer; to the right of these again is a bottle conveniently attached to a cord for the purpose of obtaining a sample. In the far right-hand corner will be observed a small well with circular opening and flap which in the illustration is open. This consists of a small chamber quite separate from the well itself just described, which communicates by means of earthenware pipes with a reservoir situated just outside the filling house some 100 feet away. The level of the reservoir is somewhat lower than that of the well cistern, so that when water is discharged into the cistern it finds its way along the pipes to the reservoir. In other words, this cistern at the well acts like a large funnel for the purpose of conveying the water away to the reservoir previously to its arrival in the filling house. This is done by attaching a pump to the big well when the well is full and pumping the water into the small

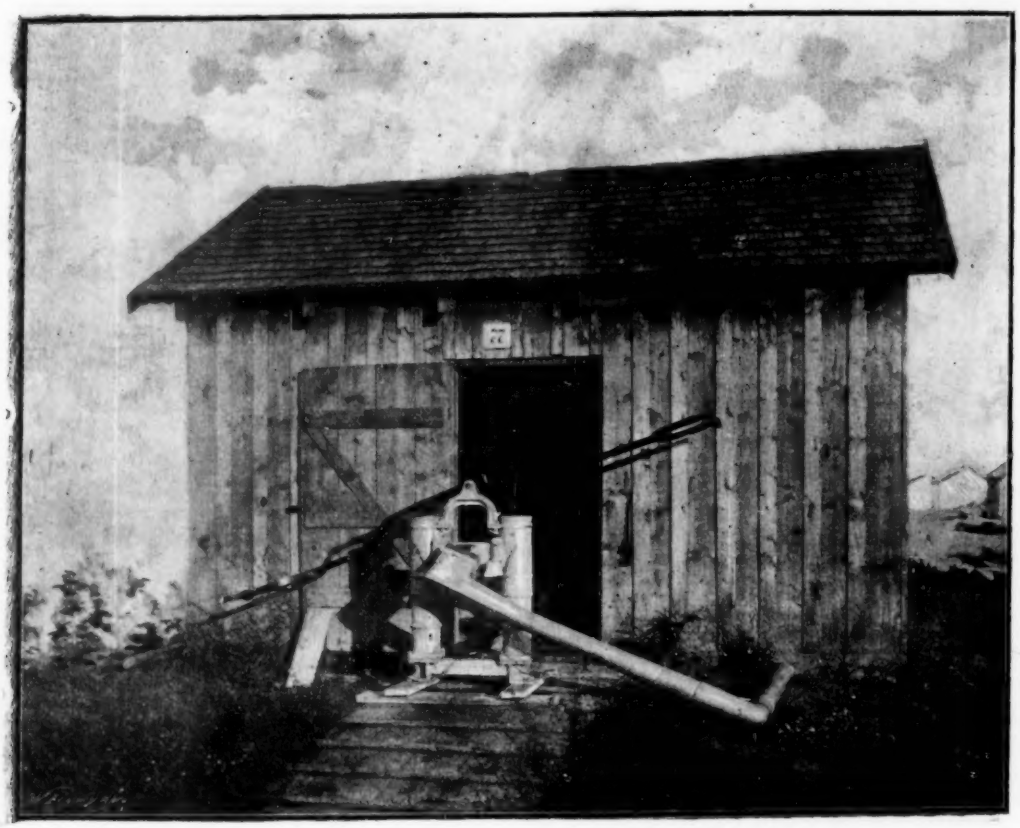
cistern referred to. Thence the water flows by gravitation into the large reservoir. The manner in which this operation is carried out is indicated in Fig. 3, where well-house No. 77 is depicted with the pump outside. The pump sucking up the water from the well and discharging it into the cistern through a pipe to the right will now be readily recognised.

The contents of each well are thus discharged into a large reservoir into which the waters from various wells flow and where they attain a uniform degree of density or specific gravity, and, therefore, of composition in regard to saline constituents. In no stage in the collecting process is there any interference with the natural character of the water—nothing is added and nothing is abstracted. Moreover, the water of one well that may be slightly weak is compensated by mixing with the water of another that is slightly strong, so that what is bottled is absolutely constant in composition. This will be found to coincide with the analysis made by Liebig and corresponding with a density of 1036 at 60° F. The temperature of the water in the wells averaged 51° F. The analysis given by Liebig of the waters bottled at this density is as follows:—

Sulphate of magnesia	16·01 parts per 1000.
Sulphate of soda	15·91 " " "
Sulphate of potash	0·08 " " "
Chloride of sodium	1·30 " " "
Carbonate of soda	0·79 " " "
Carbonate of lime	0·93 " " "
Carbonic acid, free and in solution	0·52 " " "

The water of constant degree of density is next elevated into a large wooden vat situated in the filling house and shown in Fig. 4. This vat is thoroughly cleansed by means of steam twice weekly. Thence the water is allowed to flow, according to the number of bottles being filled, into the ingenious filling apparatus situated almost exactly below the vat. Corking, capsuling, and labeling complete the process. The capsuling process is particularly ingenious, as is also the filling apparatus, which was specially designed for Messrs. Saxlehner, and capable of filling 100,000 bottles in twenty-four hours. It should be added here that all the wells yielding the Hunyadi Janos Water come under the control of the head office of the first district of Budapest, which is subject to the authority of the Ministry of the Interior, who have the entire administration of affairs in Hungary over the whole of the mineral waters, springs, and health resorts in the country. Further, as regards filling and corking and their management, these establishments and wells are submitted from time to time to local inspection, executed by the officials of the district head office, whose competency is established by the existing laws and orders; and, again, bottles filled in presence of the officials and sealed before them for the purpose of authoritative supervision and control are, if considered necessary, officially analysed.

FIG. 3.



Exterior of well-house with pumps in position.

On examining the label of one of the samples so obtained the following Hungarian statement translated into English occurs: "The natural Bitterwater contained in this bottle was yielded from the Hunyadi Janos Springs, property of Andreas Saxlehner, in the presence of the Chief of the District, mentioned below, and the bottle was officially sealed. Budapest, 19th December, 1884. Office of District No. 1.—Signed by the Secretary and Chief of the Municipality District."

The establishment is open to the inspection of visitors, and especially medical men, on presenting their card at the Saxlehner Offices, No. 3, Andrassy-street, Budapest, and the Saxlehner Spring, whence the Hunyadi Janos water is derived, is counted one of the sights worth seeing in and around the interesting and enterprising city of Budapest.

The most satisfactory way of establishing the honesty of a natural water is undoubtedly to secure specimens on the spot and to make independent analyses of them and to compare the results with samples obtained in the ordinary way on the market. If the results coincide there can remain no doubt that the water offered for sale is precisely the same as that drawn from the fountain head. Our Commissioner having obtained the permission of the proprietors, which was freely given, to select samples wherever and whenever he chose and from any single well out of the hundred on the property, or of specimens in the filling apparatus, proceeded to do so, the samples being subsequently sealed and sent to THE LANCET Laboratory for complete analysis. At the same time some dozen samples of the water were purchased in various and widely separated parts of London for analysis also, with the view of contrasting the results.

In order to make the search for rare constituents as thorough as possible no less than 25 litres of the water direct from the filling apparatus, and showing a density of 1036, was evaporated carefully down to dryness in a shallow copper vessel. This operation was conducted at the spring, and a clear crystalline residue was obtained, which was found to weigh nearly 1000 grammes (more correctly, 917·81 grammes), or 2lb. 0¾ oz. This amounts to 36·71 parts of salts in 1000 parts of the water, an amount which almost exactly coincides with that obtained by Liebig. Considering that probably Liebig operated on a comparatively small volume of the water, and that in the experiment just described no less than 25 litres, or 44 pints, or 5½ gallons were employed, the results are remarkably close and testify to the uniformity of composition of Hunyadi Janos water. The percentage composition of the salts so obtained was ascertained by analysis to be as follows:—

Magnesium sulphate	...	44·68 per cent.
Sodium sulphate	...	47·21 ,,
Sodium chloride	...	4·11 ,,
Sodium carbonate	...	1·72 ,,
Calcium carbonate	...	2·20 ,,
Lithium chloride	...	0·08 ,,
		100·00 ,,

A search for rare constituents in addition to lithia, like cæsium and rubidium, was attended with negative results. The lithium was perfectly distinct and was readily isolated in the form of chloride. It amounted to exactly two grains of lithia chloride per gallon. There was, however, no difficulty in recognising lithia in the whole of the samples examined—that is to say, both in those obtained at the springs and in those purchased.

The total results of the analyses made with the samples may next be recorded. A description of each sample is appended.

Sample A.—This was a sample which had been sealed in the manner already described by the authorities at Budapest, and attached to the bottle was a label containing a statement in Hungarian which we have already given at length. The sample was sealed in 1884.

FIG. 4.

Interior of filling-house, showing filling, capsuling, and labeling.

Specific gravity	1036·0	
Magnesium sulphate ...	15·84	grammes per litre.
Sodium sulphate	16·76	,, ,,
Sodium chloride	1·46	,, ,,
Sodium carbonate ...	0·61	,, ,,
Calcium carbonate ...	00·78	,, ,,
Lithium chloride ...	0·028	,, ,,
Free carbonic acid ...	0·40	,, ,,

The amount of lithium chloride given in the above analysis and in those that follow is based upon that found in the salts evaporated from 25 litres.

Sample B.—This sample was taken direct from the filling apparatus.

Specific gravity	1036·0	
Magnesium sulphate ...	17·44	grammes per litre.
Sodium sulphate	16·46	,, ,,
Sodium chloride	1·55	,, ,,
Sodium carbonate	0·95	,, ,,
Calcium carbonate ...	0·90	,, ,,
Lithium chloride	0·029	,, ,,
Free carbonic acid... ...	0·37	,, ,,

Sample C.—This was a sample taken direct from the tank supplying the reservoir in the filling room. This contains the waters derived from several wells.

Specific gravity	1036·0	
Magnesium sulphate ...	17·44	grammes per litre.
Sodium sulphate	18·23	,, ,,
Sodium chloride	1·52	,, ,,
Sodium carbonate ...	0·99	,, ,,
Calcium carbonate ...	0·96	,, ,,
Lithium chloride... ...	0·031	,, ,,
Free carbonic acid ...	0·51	,, ,,

Sample D.—This sample was taken from well No. 77, which is illustrated in Fig. 3.

Specific gravity	1037·0	
Magnesium sulphate ...	18·13	grammes per litre.
Sodium sulphate	18·66	,, ,,
Sodium chloride	1·66	,, ,,
Sodium carbonate ...	1·11	,, ,,
Calcium carbonate ...	0·90	,, ,,
Lithium chloride... ...	0·032	,, ,,
Free carbonic acid ...	0·49	,, ,,

Sample E.—This sample was taken from well No. 50.

Specific gravity	1021·0	
Magnesium sulphate ...	9·00	grammes per litre.
Sodium sulphate	10·83	,, ,,
Sodium chloride	0·85	,, ,,
Sodium carbonate ...	0·48	,, ,,
Calcium carbonate ...	0·80	,, ,,
Lithium chloride... ...	0·025	,, ,,
Free carbonic acid ...	0·51	,, ,,

As the specific gravity indicated, this sample proved to be slightly weaker in saline constituents, and the analysis is interesting in showing that the ratio of constituents is practically the same as in other specimens.

Sample F.—This sample was taken from well No. 23.

Specific gravity	1042·0	
Magnesium sulphate ...	19·95	grammes per litre.
Sodium sulphate	21·84	,, ,,
Sodium chloride	1·90	,, ,,
Sodium carbonate ...	0·95	,, ,,
Calcium carbonate ...	1·06	,, ,,
Lithium chloride... ...	0·036	,, ,,
Free carbonic acid ...	0·32	,, ,,

Here the specific gravity indicates a richer proportion of salts, which is confirmed by analysis. The sample is somewhat above the usual strength, but in getting mixed with the waters from other wells would be reduced to an average grade composition. That the ratio of the constituents is the same is again a noteworthy feature.

Sample G.—This sample was purchased at a shop in the Strand.

Specific gravity	1036·0	
Magnesium sulphate ...	18·34	grammes per litre.
Sodium sulphate	18·94	,, ,,
Sodium chloride	1·57	,, ,,
Sodium carbonate ...	0·95	,, ,,
Calcium carbonate ...	0·92	,, ,,
Lithium chloride... ...	0·032	,, ,,
Free carbonic acid ...	0·50	,, ,,

As will be seen, the composition of this shop sample is identical with the samples obtained from the springs.

Sample H.—This sample was purchased at the Civil Service Stores.

Specific gravity	1036·0	
Magnesium sulphate ...	18·22	grammes per litre.
Sodium sulphate	17·14	,, ,,
Sodium chloride	1·52	,, ,,
Sodium carbonate ...	0·91	,, ,,
Calcium carbonate ...	0·86	,, ,,
Lithium chloride... ...	0·030	,, ,,
Free carbonic acid ...	0·48	,, ,,

The composition of this sample differs in no essential respect from that of the previous one.

The mean results of the complete analyses of these eight samples will be found to be as follows :—

Specific gravity	1036·0	
Magnesium sulphate ...	16·79	grammes per litre.
Sodium sulphate	17·35	,, ,,
Sodium chloride	1·50	,, ,,
Sodium carbonate ...	0·87	,, ,,
Calcium carbonate ...	0·89	,, ,,
Lithium chloride... ...	0·03	,, ,,
Free carbonic acid ...	0·49	,, ,,
Mean total solid constituents	37·92	

Ten additional specimens were obtained at various shops throughout the metropolis, and the following results giving the specific gravity indicates the same consistency of composition, since obviously the degree of density depends upon the amount of dissolved constituents. In addition, lithium was detected in each and all by means of the spectroscope.

	Specific gravity.
Sample No. 1	1036·0
Sample No. 2	1036·0
Sample No. 3	1038·0
Sample No. 4	1038·0
Sample No. 5	1035·0
Sample No. 6	1037·0
Sample No. 7	1037·0
Sample No. 8	1039·0
Sample No. 9	1037·0
Sample No. 10	1038·0

Finally, the water was examined with a view to determining whether it contained organic matter in any form. In the first place it should be stated that even when twenty-five litres was evaporated to dryness and heated there was practically no sign of discolouration or charring. The following results affording additional evidence of the organic purity of the water were also obtained :—

	Grains per gallon.
Free ammonia	None
Albuminoid ammonia	Slight trace
Nitrogen in nitrates	0·07

There is thus no evidence whatever of objectionable contamination nor of any organic impurity. This abundantly shows that the admirable sanitary precautions taken at the springs and in their immediate neighbourhood are not taken in vain.

There are several features in the entire series of analyses worthy of remark. To begin with, the important fact is established that whatever modification the water may undergo in regard to strength the ratio of its medicinal constituents is absolutely the same. But, as has been pointed out elsewhere, although the proportion of total salts may vary slightly in the different waters taken from 100 wells, yet on mixing an average composition is obtained which is constant. Another point worthy of emphasis is the practical identity in composition of the samples of water obtained on the spot with the samples purchased in bottle at shops in London. This affords conclusive evidence of the honesty of the water. Taking the mean composition as a basis we find that the ratio of sulphate of magnesium to sulphate of sodium is as 1 : 1, while common salt occurs to the extent of about one-twentieth of the total amount of the sulphates. Carbonate of soda again amounts to 0·87 grammes per litre, a quantity which is quite sufficient to render the water distinctly alkaline. Carbonate of lime occurs in similar quantity, traces of this compound invariably accompanying magnesia when abundantly found. Then the water contains about half a gramme of carbonic acid, which is equivalent to a fifth of its volume of carbonic acid gas. The presence of this gas in solution contributes in no small measure to its palatability, in spite of the rich proportion of saline constituents. As regards lithia this occurs in distinct

quantity probably as chloride. It is doubtful, however, whether this small quantity signifies anything of medicinal importance. Before the *quantity* of lithium chloride in a natural aperient water has been ascertained it is not possible to attach any medicinal value to the water on this account. The quantity of lithium chloride, which is only two grains per gallon, must be very small in the average dose, a wineglassful, of the water and accordingly can possess very little value. The presence of lithium, however, is interesting in indicating the genuineness of the water as one from a natural source. It was found in every sample examined, including those purchased and those obtained at the spring. Finally, a very important feature in the results of these analyses consists in the fact that they accord very closely indeed with the results obtained by Liebig thirty years ago. Thus nothing could be more satisfactory from the therapeutic point of view than to be able to state that the composition of Hunyadi Janos water has remained substantially the same over a period of thirty years.

A consideration of the foregoing results renders the chemistry of Hunyadi Janos water quite clear, and therefore its therapeutic efficacy can be adjudged to a degree; and since its composition is constant its medicinal effect will not be variable. Further, they establish the important conclusion that the water delivered in London is identical with the natural water obtained from the wells near Budapest. Considerable attention has recently been given to the question of the respective merits of an excess of sodium sulphate or magnesium sulphate in naturally occurring bitter waters. Some have stated that those waters act most pleasantly in which the magnesium preponderates over the sodium sulphate, since it has been maintained that where the sodium is in excess of the magnesium sulphate the purgative action of the water is too drastic, an effect which may lead to disturbed digestive function and in course of time to debility. On the other hand, some have advanced arguments in favour of a moderate excess of sodium salt on the ground that its action is more prompt and certain. Sulphate of sodium is generally regarded as a more poweful purgative than sulphate of magnesium, which is described as a mild, painless, non-nauseating purgative, and less rapid in its action than sodium salt. Whichever argument obtains, however, matters but little in the case of Hunyadi Janos water, since both the salts occur in practically equal quantities, and doubtless this fact tends to produce a modifying and beneficial effect of both constituents. There can be little doubt that the presence of other salts, such as chloride of sodium and carbonate of sodium, in Hunyadi Janos water has also a modifying and favourable influence. Lastly, the therapeutic advantage of these salts occurring in a natural water is practically conceded. Why a natural water containing certain salts in certain proportion should act more favourably than a water artificially prepared, and containing the same proportion and quantity of constituents, is by no means understood, and certainly up to the present chemistry fails us for an explanation. An authority has said in some remarks upon the administration of natural mineral waters that what are called artificial waters, however admirably prepared, are simply pharmaceutical products and are destitute of a remarkable quality which distinguishes them from the remedies they are intended to imitate, and whatever this difference may be due to it is an established certainty so far that it sharply distinguishes the action of mineral waters containing salts naturally in solution from the action of salts which are made by pharmaceutical processes. The importance, therefore, of employing a natural water when it contains the salts that are indicated in medicinal treatment is obvious, and any facts which prove a guide to discriminating between a mineral water that is natural and one that is artificial will be manifestly of value.

How the composition of these saline purgative waters is effected in Nature's laboratory is a point of extreme interest. It is probable that the prime materials at hand for this purpose are dolomite, as the source of magnesia, in conjunction probably with sodium carbonate, which are slowly acted upon by the products of oxidation of iron pyrites. One of the latter products would be sulphuric acid, which may be supposed to dissolve the dolomite or native carbonate of magnesium, and the carbonate of sodium forming sulphates of these metals and free carbonic acid gas. All these products at any rate occur in Hunyadi Janos water, and the materials from which it is presumed they are formed are found abundantly in the mountains which form the valley in which the Saxlehner springs are situated.

ROYAL COMMISSION ON TUBERCULOSIS.

MEETINGS of this Commission were held at 7, Whitehall-place, S.W., on the 18th, 25th, 26th, and 27th ult., for the purpose of considering what administrative procedures are available and would be desirable for controlling the danger to man through the use as food of the meat and milk of tuberculous animals, and what are the considerations which should govern the action of the responsible authorities in condemning for the purpose of food-supplies animals, carcases, or meat exhibiting any stage of tuberculosis.

The following commissioners were present:—Sir H. E. Maxwell, Bart., M.P., chairman; Dr. R. Thorne Thorne, C.B., F.R.S.; Professor G. T. Brown, C.B.; Mr. Shirley F. Murphy; Mr. T. Cooke-French, D.L.; Mr. John Speir; and Mr. T. W. Legge, secretary. The witnesses examined were: Mr. S. B. Provis, C.B., Local Government Board; Mr. T. H. Elliott, Board of Agriculture; Dr. Sedgwick Saunders, medical officer of health for the City of London; Professor McFadyean, Principal of the Royal Veterinary College, Camden Town; Dr. Hope, medical officer of health for Liverpool; Mr. Field, M.P., President of the National Federation of Butchers' and Meat Traders' Associations; Mr. Rayment, F.R.C.V.S., Chief Veterinary Inspector, Islington Cattle Market; and Mr. Terrett, Inspector of Smithfield Meat Market.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6532 births and 4021 deaths were registered during the week ending Nov. 28th. The annual rate of mortality in these towns, which had increased in the six preceding weeks from 16·3 to 21·3 per 1000, declined again last week to 19·3. In London the lowest rate was 18·8 per 1000, while it averaged 19·7 in the thirty-two provincial towns. The lowest rates in these towns were 14·2 in Oldham, 14·3 in Halifax, 15·9 in Croydon and in Derby, and 16·0 in Leicester; the highest rates were 24·7 in Cardiff, 25·6 in Preston, 27·4 in Blackburn, and 33·1 in Wolverhampton. The 4021 deaths included 368 which were referred to the principal zymotic diseases, against 386 and 363 in the two preceding weeks; of these, 86 resulted from diphtheria, 84 from measles, 60 from scarlet fever, 53 from "fever" (principally enteric), 49 from whooping-cough, and 36 from diarrhœa. No fatal case of any of these diseases occurred last week in Preston; in the other towns they caused the lowest death-rates in Croydon, Derby, Burnley, and Sunderland; and the highest rates in Gateshead, Hull, Plymouth, and Wolverhampton. The greatest mortality from measles occurred in Nottingham, Bradford, Gateshead, and Plymouth; from scarlet fever in Leicester and Birkenhead; from whooping-cough in Swansea; from "fever" in Bolton and Wolverhampton; and from diarrhœa in Wolverhampton. The 86 deaths from diphtheria included 48 in London, 5 in Liverpool, 4 in West Ham, and 4 in Manchester. No fatal case of small-pox was registered in any of the thirty-three large towns. There was only 1 case of small-pox under treatment in the Metropolitan Asylum Hospitals on Saturday last, Nov. 28th, and no new cases were admitted during the week. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 4030, against numbers declining from 4164 to 4092 on the five preceding Saturdays; 333 new cases were admitted during the week, against 384, 362 and 398, in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 492 and 472 in the two preceding weeks, further fell to 435 last week, but were 18 above the corrected average. The causes of 63, or 1·6 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Leicester, Nottingham, Oldham, and in 11 other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, Liverpool, Huddersfield, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 23·5 and 21·1 per 1000 in the two preceding weeks, further declined to 20·3 during the week ending Nov. 28th, but exceeded by 1·0 per 1000 the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 12·6 in Greenock and 16·4 in Edinburgh to 23·3 in Aberdeen and 29·1 in Perth. The 592 deaths in these towns included 33 which were referred to measles, 15 to diarrhœa, 9 to whooping-cough, 9 to diphtheria, 8 to "fever," and 7 to scarlet fever. In all, 81 deaths resulted from these principal zymotic diseases, against 75 and 76 in the two preceding weeks. These 81 deaths were equal to an annual rate of 2·8 per 1000, which was 1·0 above the mean death-rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had been 17 and 37 in the two preceding weeks, declined to 33 last week, of which 27 occurred in Glasgow and 4 in Aberdeen. The 9 deaths from whooping-cough exceeded by 2 the number recorded in the preceding week, and included 6 in Glasgow and 3 in Edinburgh. The fatal cases of diphtheria, which had been 8 and 4 in the two preceding weeks, rose again to 9 last week, of which 4 occurred in Glasgow and 2 in Edinburgh. The deaths referred to different forms of "fever," which had been 7, 10, and 4 in the three preceding weeks, rose again to 8 last week, and included 5 in Glasgow and 2 in Greenock. The 7 fatal cases of scarlet fever corresponded with the number in the preceding week, and included 3 in Aberdeen, 2 in Glasgow, and 2 in Leith. The deaths from diseases of the respiratory organs in these towns, which had been 179 and 172 in the two preceding weeks, further declined to 146 last week, but were 39 above the number in the corresponding week of last year. The causes of 28, or nearly 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had increased in the four preceding weeks from 23·7 to 29·5 per 1000, further rose to 31·6 during the week ending Nov. 28th. During the past nine weeks of the current quarter the death-rate in the city has averaged 25·9 per 1000, the rate during the same period being 18·1 in London and 17·0 in Edinburgh. The 212 deaths registered in Dublin during the week under notice showed an increase of 14 upon the number in the preceding week, and included 20 which were referred to the principal zymotic diseases, against 13 and 16 in the two preceding weeks; of these, 7 resulted from whooping-cough, 5 from scarlet fever, 5 from diarrhœa, 2 from "fever," 1 from measles, but not one either from small-pox or diphtheria. These 20 deaths were equal to an annual rate of 3·0 per 1000, the zymotic death-rate during the same period being 1·6 in London and 1·3 in Edinburgh. The fatal cases of whooping-cough, which had been 4 and 3 in the two preceding weeks, rose again to 7 last week. The deaths from scarlet fever, which had been 5, 5, and 7 in the three preceding weeks, declined again to 5 last week. The 2 deaths referred to typhoid fever, were within one of the number recorded in the preceding week. The 212 deaths in Dublin last week included 40 of infants under one year of age, and 61 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons considerably exceeded the numbers returned in recent weeks. Seven inquest cases and 6 deaths from violence were registered; and 70, or nearly a third, of the deaths occurred in public institutions. The causes of 15, or 7 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ARMY MEDICAL STAFF.

SURGEON-CAPTAIN H. COCKS assumes temporary Medical Charge of the troops at Great Yarmouth, vice Brigade-Surgeon J. Adcock, placed on the sick list. Surgeon-Colonel R. P. Ferguson, on his arrival from India, will be posted to the Woolwich District. Surgeon-Major C. R. Tyrrell has embarked for India. Surgeon-Colonel W. S. M. Price and Surgeon-Lieutenant F. Dove will shortly embark for India. Surgeon-Major A. P. O'Connor and Surgeon-Captain V. H. W. Davoren have been ordered to Ireland for duty.

Surgeon-Major-General Charles Hervé Giraud is placed on retired pay. Surgeon-Colonel Charles MacDonogh Cuffe, C.B., P.M.O., Rawul Pindi District, has been ordered to return to England on his promotion to the rank of Surgeon-Major-General vice E. C. Markey, C.B., deceased.

INDIA AND THE INDIAN MEDICAL SERVICES.

The services of Surgeon-Captain E. C. Hare (Bengal), are placed permanently at the disposal of the Chief Commissioner of Assam. The services of Surgeon-Captain D. T. Lane (Bengal), are placed permanently at the disposal of the Government of the Punjab. The services of Surgeon-Captain E. Wilkinson (Bengal), are placed temporarily at the disposal of the Government of the Punjab. The services of Surgeon-Captain J. M. Cadell, M.B. (Bengal), are placed permanently at the disposal of the Government of the North-Western Provinces and Oudh. Surgeon-Colonel J. Williamson, A.M.S., is brought on the Administrative Medical Staff of the Army, vice Surgeon-Colonel W. T. Martin, retired.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant T. E. Stuart to be Surgeon-Captain.

VOLUNTEER CORPS.

Artillery: 1st Sussex (Eastern Division) Royal Artillery: Ernest Tom Cox, M.D., to be Surgeon-Lieutenant. 1st Norfolk (Eastern Division, Royal Artillery): Surgeon-Lieutenant R. Wrigley resigns his commission. 1st Banff: Surgeon-Lieutenant J. I. McArthur, M.B., resigns his commission. 1st Ayrshire and Galloway: Surgeon-Captain R. Allan, M.B., to be Surgeon-Major. *Rifle:* 2nd (Angus) Volunteer Battalion the Black Watch (Royal Highlanders): Thomas Wright Parkinson, M.B., to be Surgeon-Lieutenant. 1st Volunteer Battalion the Essex Regiment: Surgeon-Lieutenant St. C. B. Shadwell to be Surgeon-Captain. 7th Middlesex (London Scottish): James Cantlie, M.B., to be Surgeon-Lieutenant.

TYPHOID FEVER IN THE FRENCH ARMY.

In 1881 there were between 16,500 and 17,000 cases of typhoid fever in the French army (inclusive of the troops in Algeria and Tunisia), with about 3,250 deaths. By 1893 the admissions to hospital had fallen to 5250, and the fatal cases to 750. The amelioration throughout the twelve years was almost constant, the year 1886 alone having exhibited a partial recrudescence in both categories. It should also be noted that the army was stronger towards the end of the period by about 50,000 men. The improvement is consequently greater in reality than apparently. The proportion of deaths to total treated would seem to indicate a diminution in the virulence of the poison; in 1881 it was 19·4 per cent., and in 1893 only 14·2 per cent. Observers in general agree in ascribing most of the credit to purification of the water-supply by filtration or otherwise, but Surgeon-Major A. Dubrulle insists on the telluric habitat of the morbific agent, water being merely one of the disseminating media. In an interesting paper on an outbreak at Bourg in 1894 this officer dwells on the necessity for safeguarding from typhoid contamination the vicinity of all barracks, inclusive of floors, interjoists, &c. The excessive and deplorable mortality from enteric fever of young officers on foreign service, where as a rule they do not occupy public quarters, may, according to this view, be in some measure due to contamination of the buildings inhabited by them. The thorough disinfection of all private houses in which cases of the disease have occurred should be rigorously insisted on in India and the colonies generally.

CUBA.

Military affairs do not seem to be progressing at all favourably for the Spanish army in Cuba. The rebel forces are split up and distributed over various parts of the country, and it is consequently impossible to make any concentrated attack on them. Six thousand sick and wounded Spanish troops have recently arrived at Havana, and it is reported that there is altogether the appalling total of 16,000 in the various hospitals at that station.

Correspondence.

"Audi alteram partem."

BEATTY v. CULLINGWORTH.

To the Editors of THE LANCET.

SIRS,—In compliance with a generally expressed wish it has been decided to issue an appeal for subscriptions towards the heavy costs thrown upon Dr. Cullingworth by the protracted litigation in which he has been involved. Co-operation is invited from all who sympathise with the trouble and anxiety to which he has been subjected, so that he may at least be relieved from the pecuniary burden which has been thus forced upon him. Cheques should be made payable to the honorary treasurer, Sir William Roberts, and may be sent to the honorary secretaries, 74, Brook-street, London, W.

Dr. Lloyd Roberts has consented to receive contributions in Manchester and Sir Thornley Stoker in Dublin.

Dec. 1st, 1896. T. D. ACLAND, B. PITTS, } Hon. Secs.

The following subscriptions have already been received or promised :—

	£	s.	d.
Sir William Broadbent, Bart.	10	10	0
Dr. J. Halliday-Croome	2	2	0
Dr. Glover	2	2	0
Dr. Wilks, President of the Royal College of Physicians of London	5	5	0
Sir W. Mac Cormac, President of the Royal College of Surgeons of England	5	5	0
Sir Joseph Lister, Bart., President of the Royal Society	10	0	0
Sir James Paget, Bart.	2	2	0
Sir Henry Acland, Bart., Oxford	2	2	0
Sir John Williams, Bart.	10	10	0
Sir William Roberts	21	0	0
The Treasurer of St. Thomas's Hospital	5	5	0
The Acting Staff of St. Thomas's Hospital	105	0	0
Dr. Lloyd Roberts, Manchester	21	0	0
Dr. T. Harris, Manchester	21	0	0
Mr. Jonathan Hutchinson	10	10	0
Dr. Champneys	5	5	0
Mr. Meredith	5	5	0
Mr. Nettleship	10	10	0
Dr. Gervis	10	10	0
Mr. Croft	5	5	0
Dr. Savage	2	2	0
Mr. T. P. Teale, Leeds	5	5	0
Mr. F. Treves	5	5	0
Dr. Clement Godson	2	2	0
Mr. Alfred Cooper	1	1	0
Dr. Percival White	1	1	0
Sir William Priestley, M.P.	5	5	0
Mr. G. Lawson	2	2	0
Dr. Cavafy	2	2	0
Dr. Horrocks	10	10	0
Mr. Howard Marsh	5	5	0
Mr. Pickering Pick	2	2	0
Sir Henry Thompson	5	5	0
Dr. William Duncan	5	5	0
Mr. Malcolm Morris	5	5	0
Dr. Church	2	2	0
Dr. Herbert Spencer	2	2	0
Mr. Tom Smith	5	5	0
Mr. John Langton	2	2	0
Dr. Pye-Smith	2	2	0
Dr. Frederick Roberts	5	5	0
Dr. Crosby	5	5	0
Dr. Barlow	5	5	0
Mr. George Field	5	5	0
Mr. Harrison Cripps	2	2	0
Mr. Edmund Owen	1	1	0
Dr. C. T. Aveling	2	2	0
Mr. R. J. Godlee	2	2	0
Dr. Goodhart	5	5	0
Mr. Oliver Maurice, Reading	1	1	0
Mr. A. Pearce Gould	3	3	0
Mr. R. Douglas Powell	10	0	0
Dr. Nesham, Newcastle-on-Tyne	2	2	0
Sir Dyce Duckworth	3	3	0
Mr. Davies Colley	2	2	0
Mr. Evan Jones, Aberdare	2	2	0
Dr. Robert Barnes	5	5	0
Dr. Henry Barnes, Carlisle	2	2	0
Mr. Mayo Robson, Leeds	5	5	0
Mr. Alfred Willett	5	5	0
Mr. T. R. Jessop, Leeds	5	5	0
Professor Byers, Belfast	2	2	0
Dr. Leech, Manchester	21	0	0
Dr. Fancourt Barnes	3	3	0
Mr. H. T. Butlin	5	0	0
Dr. Savage	2	2	0
Dr. Benthall, Derby	2	2	0
Dr. R. N. Ingle, Bedford	1	1	0
Dr. Robert Boxall	3	3	0
Dr. A. R. Simpson, Edinburgh	2	2	0
Mr. Marmaduke Sheild	2	2	0

Received through Dr. Lloyd Roberts, Manchester.

	£	s.	d.
Dr. Steell, Manchester	2	2	0
Mr. Thos. Jones, Manchester	5	5	0
Mr. F. A. Southam, Manchester	2	2	0
Dr. Donald, Manchester	21	0	0
Mr. Coats, Manchester	1	1	0
Dr. Sinclair, Manchester	5	0	0
Dr. Hodgkinson, Manchester	3	3	0
Dr. Dixon Mann, Manchester	3	3	0
Dr. G. J. Robertson, Oldham	2	2	0
Dr. Keeling, Sheffield	5	5	0
Dr. Briggs, Liverpool	2	2	0
Dr. G. W. Smith, Manchester	1	1	0
Dr. Glascott, Manchester	2	2	0
Dr. Little, Manchester	21	0	0
Dr. W. K. Walls, Manchester	2	2	0
Dr. H. G. Brooke, Manchester	2	2	0
Dr. Walter, Manchester	10	10	0
Mr. G. A. Wright, Manchester	2	2	0
Mr. Westfield, Manchester	1	1	0
Mr. Berry, Wigan	1	1	0
Dr. Martin, Sheffield	1	1	0
Mr. Favell, Sheffield	5	0	0
Dr. Buckley, Manchester	5	5	0
Dr. Emrys Jones, Manchester	1	1	0
Dr. Judson Berry, Manchester	1	1	0
Dr. Dreschfeld, Manchester	10	10	0

"THE LORD MAYOR'S PROPOSAL AND THE HOSPITALS."

To the Editors of THE LANCET.

SIRS,—Your powerful advocacy of the claims of our hospitals on the consideration of the benevolent is chosen with peculiar fitness at this time. Everybody who has the welfare of these great charities at heart must share in your dismay that the grand idea of the Lord Mayor to wipe off the debt which is crippling the usefulness of many of them should by any means filter down to the diminutive scheme of endowing the Queen Victoria Institute for Nurses.

The long and glorious reign of our beloved Queen, the enormous strides made during that reign in the art and science of healing, and the gratuitous services of the flower of the profession unstintingly placed at the disposal of the poor, should be a valid enough excuse for asking the wealthy public of England to emancipate her hospitals from the anxieties in which many of them are now existing. This done—and it might be done with little difficulty—then might be considered the question of their future support.

That the health of the people of a state is of some importance to that state goes, I suppose, without saying; that it is of as much moment, however, to heal the people as to educate the people may well be a matter of opinion; but few, I imagine, will be found to deny that some sort of relationship exists between the two questions. The addition, nevertheless, of a penny to an unpopular tax would find little favour with the Government now in power, and the official machinery required for dispensing the two millions resulting from it, as suggested by Colonel Gordon Watson in THE LANCET of Nov. 28th, would be found difficult of application. Perhaps a penny on the poor-rate of every borough would more easily meet the case. Unquestionably, as Colonel Watson suggests, every hospital should be free. Poverty, sickness, and an unoccupied bed should be the passports to every hospital, the abomination of letters of recommendation being done away with for ever. It seems to me, with a life's experience of contact with hospitals and the sick poor, that we have to look squarely in the face two important facts—firstly, the existence in our midst of a vast amount of untreated disease, which under an adequate bed-supply in State-aided hospitals might be nipped in the bud to the great ultimate saving of our poor-rates; and secondly, we have to acknowledge the unpleasant fact that in the heart of the wealthiest nation of the world there are languishing a number of noble medical charities, for the most part in a state of hopeless insolvency. Does any one suggest that by invoking the aid of the State in favour of our hospitals we are so far drying up the contributions and interest of the benevolent? My answer is that the benevolent will continue to give even when our hospitals do not require their help. Unfortunately, there are too many avenues for the outlet of their wealth, and into those paths their wealth would surely find its way. But the "clapping of a penny on the rates" would serve to tap that large and muddy pool of the unbenevolent whose names are conspicuously absent from all subscription-lists to good works. It might be a fitting tribute to the glory, and an act of gratitude to the prosperity of the past sixty years if the deliverance of our medical charities should go down into story as one of the transactions which those years have achieved.—I remain, Sirs, yours faithfully,

FREDERICK W. WRIGHT.

Tol Pedn, South Godstone, Dec. 2nd, 1896.

"ELECTION OF DIRECT REPRESENTATIVES TO THE GENERAL MEDICAL COUNCIL."

To the Editors of THE LANCET.

SIRS,—Inasmuch as in your report of the proceedings of the General Medical Council a reference will doubtless be made to Mr. Rivington's complaint against me to the Council, and as I was refused any hearing by the Council, I trust you will allow the following letter, which appeared in the *Times* of Nov. 30th, to find a place in your columns :—

To the Editor of the *Times*.

Sir,—In your notice of the sitting of the General Medical Council on Saturday you report that a complaint was made to the Council by a candidate for election thereto, Mr. Rivington, the complaint being that as chairman of a committee formed to secure the return of Dr. Glover, Dr. Woodcock, and Dr. Drage, I had signed and issued an inaccurate circular in which it was stated that "one vote should be given

to each of these candidates respectively. Plumping is not permitted." The Council received the complaint, they entered it on their minutes, they considered it *in camerâ*, and from first to last refused (as you duly report) to hear my justification of the use of the words complained of. Under these unusual circumstances, perhaps you will allow me to state that justification in your columns.

In the first place, let me say at once that the statement complained of was made solely on the authority of the General Medical Council itself. The question involved is as follows: An election of direct representatives to the Council was about to begin. There were ten candidates, but only three vacancies. Each member of the medical profession had, therefore, three votes only at his disposal.

The committee formed to secure the return of Dr. Glover, Dr. Woodcock, and Dr. Drage found that some members of the profession were under the mistaken impression that they could plump all three of their votes for one candidate. The committee were aware that this had been decided by the Council to be illegal, but to make the point perfectly certain they wrote to the registrar of the General Medical Council and received from him the following statement (dated Sept. 8th, 1896) in answer to their question, "Is plumping permitted?" "What is known as 'plumping' is not allowable in the election of direct representatives—i.e., a voter cannot give all his three votes to one candidate." Moreover, in 1886, when the first of these elections was about to be held, the Council drafted a series of instructions to voters in the form of questions and answers which were approved by the Council's solicitor and signed by the Registrar on behalf of the President. Amongst these the only reference to "plumping" is as follows:—

"12. Question.—Will plumping pure and simple—that is, one voter giving all his three votes to one candidate—be legal?

"Answer.—No.

"By desire of the President,

"W. J. C. MILLER, Registrar."

Since the election and the regulations for its conduct are entirely in the hands of the Council any mistake that any voter might have made lies solely at the door of the General Medical Council. That Council decided for the purposes of this election that plumping shall mean the giving of three votes to one candidate, and in that meaning and on that authority the word was used by the committee for the return of Drs. Glover, Woodcock, and Drage. In the second document I have referred to above as issued officially by the Council the questions of disfranchisement and vote-splitting naturally find a place, but not as "plumping."

Thus, No. 14 runs as follows:—

"14. Question.—May he give one vote to one man and withhold the other two altogether?

"Answer.—Yes."

This may be "plumping" in some elections and in Mr. Rivington's mind, but it is not "plumping" as defined by the General Medical Council for the express purposes of the election in which we are now involved. Thus, the responsibility of any possible mistake belongs to the Council. Only to their consciousness of this can I attribute the fact that the members of the Council, having refused me a hearing and discussed the matter in secret, came to an inconsequential resolution on a question of which they permitted only one side to be represented.

Yours faithfully,

Cavendish-square, Nov. 30th. VICTOR HORSLEY.

I wish to add that though this matter was forced upon an unwilling Council by Sir W. Turner and Mr. Wheelhouse on Friday evening, these same gentlemen declared on Saturday morning, without any apology or preface, that in their opinion (!) the Council had nothing to do with the question.

I am, Sirs, yours faithfully,

Cavendish-square, W., Dec. 2nd, 1896. VICTOR HORSLEY.

A 2500 VOLT SHOCK.

To the Editors of THE LANCET.

SIRS,—The following details of a recent electric accident are interesting and may be useful. On Nov. 20th an electrical engineer was standing on a chair ready to move a reversing switch on the arc lamp side of a rectifier for lighting a series of sixty lamps (3000 volts). He casually placed his hand on the metal cover of an ammeter (which was in series with another sixty lamp circuit) and turning to the left and leaning back to make an observation (still standing on the chair) he placed his left hand on an iron pillar. Now the ammeter case proved to be in metallic contact (accidental) with the light leads, and as the return wire was "earthed" there played through the body from hand to hand a current under a pressure of (nominally) 3000 volts. As a matter of fact, the electro-motive force tested between the points of contact by a Kelvin electrostatic voltmeter proved to be 2500 volts. He says that the first thing he realised was that he found himself standing on the floor, but has no clear idea as to whether he jumped off or was "knocked off." The forearm was "drawn up close to the chest" and the hands clenched. From a little above the elbow downwards he described a "feeling of pulsation" and a violent beating in exact step with the alternators (running eighty-three periods per second). All power of movement below the elbow was absolutely lost, but the arm at the shoulder could be moved from the side. The pulsations, although still retaining their periodicity, soon became less violent, and motor power returned successively in the muscles that move the elbow wrist and fingers. In three minutes he felt "none the worse." There was no sensation of burning at the moment, but ten minutes afterwards the hands became painful and examination showed a burn on the tip of the middle and ring fingers (l) and on the back of the little and ring fingers (r), with a seared line across the lower portion of the palm. There has been no other effect excepting that he expresses himself as feeling "decidedly better in general health."

Query.—Which current did the body receive? With the contacts named I estimate (by experiment) that the resistance of the body might be 10,000 ohms. Thus, $\frac{2500}{10000} = 0{\cdot}25$ ampères.

I am, Sirs, yours faithfully,

Mansfield-street, W., Nov. 30th, 1896. W. S. HEDLEY.

THE MIDWIVES QUESTION.

To the Editors of THE LANCET.

SIRS,—The midwife must always be with us, either because the population among whom she works is too scattered or is too poor to secure the advantages of the medical man's skill, or because a certain number of parturient women have a preference for her. If these parturient women are ready to commit their well-being during the pangs and the uncertainties of maternity to the unskilled, there is no power, present or prospective, to come authoritatively between them and the risk they in many cases ignorantly or carelessly accept. The principle, therefore, which should underlie our efforts to control the practice of the unqualified midwife consists in placing impediments in her way and so of saving some of our suffering sisters from being maimed or from death in the giving of life. With this purpose I would suggest that every uncertified woman who shall attend a parturient patient shall be required to state before the registrar soon after the confinement, or at latest when the birth shall be registered, how it came to pass that she undertook the responsibility of attendance and what it was she did, step by step, during the labour as well as afterwards. This statement should be signed by the informant and scheduled by the registrar. The schedules should be transmitted periodically to the medical officer of health, whose duty it should be to tabulate the particulars and forward them to a central bureau in direct communication with the General Medical Council, if not to the Council direct. The necessity for the midwife to report to the registrar would tend to make her less ready to undertake skilled work with unskilled hands and also to make her employers less ready to engage her; but if not it would produce a mass of facts which could be utilised in ulterior legislation. So much for the uncertified midwife.

Now a suggestion or two relating to the certificated woman. In the first place I would recommend that she should notify each engagement so soon as it is made to a predetermined registered practitioner—presumably that one living nearest to the patient. She should supply him with all needful particulars and at the same time hand him a small retaining fee, his acceptance of which should be the sign of his undertaking the responsibility of attending at her call or at the call of the patient's friends. She should also be ready with a short memorandum from a friend of the patient—probably her husband or some benefactress—that a minimum fee of a guinea will be paid in case of his being summoned. Then as to this midwife's training and her ultimate qualification. She should be able to secure her training, as some do now, at a maternity hospital; but I would add to this method another. A certain number of medical practitioners—say, three or four in a given area—might be together empowered, by individual oral tuition, to impart the needful knowledge to a suitably recommended candidate. After this tuition let her precede or accompany them to a certain number of midwifery cases, say, fifty in all, for practical instruction. This over, and her papers duly signed by her preceptors, let her present herself for examination before a board appointed by the General Medical Council, and upon proof of her fitness let her receive her certificate empowering her to act under some such conditions and limitations as have been heretofore mentioned.

These several suggestions, although more or less crude, do, I think, show a way out of the midwives difficulty; but all the details of these or any other suggestions should, I think, be carefully considered by the General Medical Council, who should be prepared to come to some definite decision, for with the Council alone should that decision rest.

I am, Sirs, your obedient servant,

Kenley, Surrey, Nov. 24th, 1896. E. DIVER.

MEDICAL WRITINGS OF SAMPSON PERRY.

To the Editors of THE LANCET.

SIRS,—I should be very greatly obliged to you if you will allow me to enquire, through your columns, whether any of your readers possess copies of Sampson Perry's work on Lues Gonorrhœa and Tabes Dorsalis (1786); and his Disquisition on the Stone, in any edition earlier than the fifth (1777). Should this be the case, I would be greatly indebted to the possessor for the temporary loan of these books. I am collecting materials for a biography of the author; and, unfortunately, the books in question cannot be found in the libraries of the British Museum, College of Surgeons, or College of Physicians.—I am, Sirs, yours faithfully,

F. H. PERRY COSTE.

13, Fernshaw-road, Chelsea, S.W., Dec. 2nd, 1896.

"THE EFFECT OF THE ROENTGEN RAYS ON URINARY AND BILIARY CALCULI."

To the Editors of THE LANCET.

SIRS,—In your issue of Nov. 14th (p. 1367) Mr. Henry Morris says: "Up to the present time the new photography has not rendered us any assistance in the diagnosis of renal and biliary calculi." Three months ago I removed a renal calculus from a patient in which an obscure diagnosis had been made clear by means of the Roentgen rays, which produced a very distinct shadow in the position of the calculus. It was found that an exposure of twenty minutes gave a much more distinct shadow than an exposure of thirty-five minutes. The calculus was one of those rare varieties of oxalate of lime in which the salt is deposited in large octahedral crystals, causing the surface to appear as if studded with broken glass. It weighed 148 grains. I have also had under my care at the Royal Infirmary here another patient with symptoms of stone in the kidney in which the skiagram exhibited a shadow in the region of the affected kidney. The patient, however, refused to submit to operation. One of my colleagues tells me that he has too removed a calculus from a kidney about six months ago in a case in which the diagnosis had been previously established by means of skiagraphy.

I am, Sirs, yours faithfully,

JAMES SWAIN, M.S., M.D. Lond., F.R.C.S. Eng.

Clifton, Bristol, Dec. 2nd, 1896.

DEATH CERTIFICATES AND UNQUALIFIED ASSISTANTS.

To the Editors of THE LANCET.

SIRS,—Now that the election of representatives is before the members of the medical community there is one question hitherto not referred to by the candidates which I should like discussed. The question is the power of registrars to accept certificates of deaths from unqualified assistants, placing them under the category of uncertified deaths. If a registrar and an unqualified assistant are friendly the unqualified assumes at once the authority of a fully-fledged medical man, the difference being that he writes his certificate on unofficial paper. The registrar accepts it, places it under the heading of uncertified deaths, and there is an end to it. Or, again, the coroner's beadle drives up in style, makes his own diagnosis, chats to the friendly principal, the friends appear at court next morning and receive the burial order, whilst the "unqualified" declares to the patient's friends that as he had not seen the case three times he consequently could not certify. I ask your numerous readers, should we allow this? As a class of men, professional men, we have very few rights. The competition is very great amongst professional men without taking into consideration the unqualified. In this, our only method of proving to the patients the difference between the registered qualified man and the unqualified, we are baffled by a by-law. Do you not think that this by-law should be altered or erased? Why should the coroner's beadle accept the post-mortem diagnosis of the principal? I think, perhaps rather strongly on the subject, but I hold that every case attended by an unqualified assistant which terminates fatally should be made the subject of a post-mortem examination by a disinterested medical man. This, in my opinion, would help to eradicate the evil of unqualified practice. Trusting that this letter will meet the eyes of some of the candidates,

I am, Sirs, yours faithfully,

Nov. 30th, 1895. REGISTERED.

*** We gather that our correspondent is writing from actual knowledge of facts. If he will communicate to us full details we shall know how to act. His privacy will, of course, be respected.—ED. L.

RANSOM *v.* OD CHEM. CO.

WE have received the following from Messrs. Hempsons, the solicitors to the Medical Defence Union, for publication, and we congratulate Dr. Ransom and his advisers upon the apology:—

W. B. RANSOM *v.* OD CHEM. CO.

Whereas we recently published on page 176 of a pamphlet issued by us entitled "The Witness Box No. 4," relating to the drug called "Sanmetto" manufactured and sold by us, a testimonial purporting to have been given by Dr. W. B. Ransom of Nottingham, England. Although we received the testimonial in question on a post card purporting to come from Dr. Ransom we now find that the same was not sent by him or by his authority and that he has never used the said drug or given any testimonial concerning it.

We therefore publish this statement and desire to express our sincere regret to Dr. Ransom for having misguidedly made use of his name in this connexion and for the inconvenience and annoyance caused him thereby, and we have submitted to an injunction restraining us from further publishing or making use of Dr. Ransom's name in connexion with "Sanmetto."

Dated this Third day of December, 1896.

15, Cedar-street, New York. OD CHEM. CO.

THE UTILISATION OF MICRO-ORGANISMS IN THE PURIFICATION OF SEWAGE.

(FROM OUR SPECIAL COMMISSIONER.)

The Experiment at Exeter.

EXETER, we have seen, was among the first towns of England to build sewers.[1] This is a fact which is greatly to the honour of its inhabitants, and it would seem as if they were determined to win further laurels. In any case Exeter is striving to be the first town to satisfactorily dispose of its sewage. This is a problem which, it must be confessed, has not yet been fully solved. Of course, I do not allude to towns so situated as to be able to pour their sewage into the open sea. In such favoured places the problem only consists of seeking for an outfall where the sewage is not likely to be washed back on the shore. The problem of sewage disposal presents itself in its most complex phase in land where there is at best but a river which must not be polluted, and where local circumstances or the scarcity of land render the establishment of large farms impracticable. In our large manufacturing centres—in Lancashire especially—this is the position of affairs, and it is because the problem has not been solved that the Manchester Ship Canal is nothing better than a large open sewer. Where the sea is beyond reach and sewage-farms are unattainable the chemical treatment of sewage is the only method which has yet been attempted—at least, on a large scale. Can it be said that the results are satisfactory? This is more than doubtful. In any case, the chemical treatment of sewage necessitates a considerable expense and the employment of a large amount of labour. Not only are attendants required to mix the chemicals with the sewage, but the disposal of the sludge obtained from the chemical treatment of sewage involves a great amount of trouble and expense. Thus a permanent expense in labour, chemicals, and cartage is imposed on the communities concerned even if the result is the sufficient purification of the sewage.

The town of Exeter is now prepared to show us a better

[1] THE LANCET, Nov. 7th, 1896.

and certainly a much cheaper way out of the difficulty. Mr. Donald Cameron, the city surveyor, has invented and patented what he terms the septic tank system of sewage treatment. This system is at present applied to one of the sewer outfalls of Exeter, where an average of 90,000 gallons of sewage is purified every day. Naturally the experiment was not conducted on so large a scale at first; but there is no need to describe in detail the smaller and previous attempts, for the actual installation is more complete and perfect. It is situated on the banks of the River Exe, not far from the town and in a district called Belleisle. Following the weir field path I came to a small field separating the path from the river. To the casual observer there is little or nothing to be seen. There are no buildings, no noisy engine grinding and preparing the chemicals, no busy attendants opening and shutting sluice valves or urging horses along to convey away sludge, &c. All the usual signs of busy sewage works were absent. There was not a person on the spot. The twitter of a few birds and the musical murmur of the passing stream alone broke the silence. The spot only differed from the neighbouring fields because there was a long grass-covered mound on one side and close by a little masonry protruding an inch or two above the surface of the ground, like the foundations of some walls. On entering the enclosed field I found the masonry formed five compartments of the same size, and by the pebbles they contained it was easy to see that these were so many filters. But at first the chief interest centred on the mound, for this was the grass-covered, domed roof of the septic tank. The tank is made of cemented masonry built down into the ground and measures 64 ft. by 18 ft. The depth varies from 7 ft. to 10 ft. This tank is large, though it is not larger than what is generally constructed for purposes of chemical precipitation. Close to, but outside, the tank there is a small manhole where the sewage can be seen arriving in its raw condition. Here a railing prevents any very large object, such as a big piece of wood, a brickbat, or any other hard and cumbersome rubbish from entering the tank. All small particles and the solids in suspension pass freely into the tank. A sort of weir, constructed a few feet in front of the inlet and across the tank, serves to arrest the heavier particles, which are principally composed of road grit. The weir forms a grit chamber, which is divided in two, and there are two inlets, one for each division. Thus the sewage may flow into one half of the grit chamber while the other half is being cleared out. The inlets are close to the bottom and the aperture of the inlet pipe is smaller on the tank side than on the sewer side. Consequently there is always a certain pressure of water as it enters the grit-chamber, and this serves to stir up the grit and washes and separates from it certain organic matter which the grit would otherwise carry down. As a result of this operation the grit that remains is very clear and for the most part mineral matter; no sludge is formed. The sewage, after entering the bottom of the grit-chamber with some violence as it forces its way through the narrowed pipe, flows quite gently and gradually over the top of the submerged weir which separates the small grit-chamber from the large septic tank beyond. This tank has a capacity for 53,000 gallons.

The theory dominating this construction is based on the principle that nature unaided will deal, and has dealt, with sewage where its powers are not overtaxed. The world did exist before sewers were built, and though in rural districts sewage was used for manure the larger towns poured their raw sewage into the nearest streams. Nevertheless, the rivers remained pure, or, rather, they were able to purify the impurities they received so long as the country was not too thickly populated. Even now it would be difficult to say whether it is sewage proper or the products of manufactories that have destroyed the purity of rivers. In any case experience shows that sewage is greatly purified by a river, and artificial methods cannot rival the forces of nature when the latter are not overtaxed. This does not mean that we should discharge raw sewage into rivers, for their waters may be drunk before they have had time to purify the sewage thrown into them. It only implies that we should seek to employ natural rather than artificial forces, that we should place sewage in such a position as will enable nature to perform its own work of purification without ourselves seeking to do this by the employment of chemicals or other such artificial means. When the methods nature employs to destroy and disperse organic matter were not known it was difficult, indeed, impossible, to purposely provide what was necessary to favour the natural processes. Now, however, we know that the decomposition of organic matter is due to the successive action of various families of micro-organisms. The first feed on organic matter, convert it into a simpler form, and then poison themselves by their own product. They give place to another race, which in its turn feeds and prospers on what their precursors have left, till at last the solids of sewage are broken down by many operations and races of microbes following one upon the other with beneficent and wondrous rapidity. Under these circumstances the chemical treatment of sewage, in so far as it tends to kill micro-organisms, could be condemned as opposed to the scheme of nature. We should not destroy the purifying agents which nature has provided, but, on the contrary, give them every facility for the accomplishment of their mission. Now the chemicals which precipitate sludge carry down with the sludge most of the micro-organisms contained in sewage. This is not an unmixed blessing. The process we know deprives the water of the organisms that would purify the water. Does it also deprive the water of the special pathogenic germs of human diseases? The sewage by precipitation is at least partially sterilised. Perhaps it is because the sewage has been deprived of the micro-organisms necessary to assure its automatic purification that we hear so much of the deferred putrefaction which sets in after the clarified sewage affluent has been discharged into a river. Such are Mr. Cameron's arguments, and his object has been to find a practical means of treating sewage according to the laws of nature. Instead of destroying micro-organisms he has sought to encourage their production to the utmost extent. This is the purpose of the septic tank.

The better to accomplish its task the tank is deprived of light and almost deprived of air. Here the sewage remains for a considerable time. The water is comparatively stationary. It enters slowly, for it has to flow over the whole length of the submerged weir which separates the tank proper from the grit chambers. The outlet is also submerged so as not to admit air and light, and so that the water taken at middle depth alone shall escape—that is, the water which is farthest from anything which floats at the top or which sinks to the bottom of the tank. In the absence of light and air the micro-organisms in the sewage increase at a fabulous rate and therefore the organic matter is attacked with extraordinary energy and promptitude. Descending a manhole constructed in the centre and provided with glass windows I was able to see the sewage within the tank. On the surface there was a dirty brown scum and under it a thick, leather-like skin with a considerable amount of flocculent matter underneath. This crust of solid substances floating and completely bridging over the water was about three inches thick. Though the larger part of the solids were floating on the top there was a thinner layer of the heavier substances at the bottom of the tank. When most of the organic matter in a solid floating substance is dissolved the ash drags that which remains down to the bottom. But here fresh action sets in. Soon a bubble is formed and the little fragment is buoyed up again to the underside of the crust at the top of the tank. Now the bubble gradually squeezes its way through this crust and bursts under the dome of the tank. The little particle, having lost its airy support, falls once more down to the bottom. But so sure as it contains organic matter this particle will be fastened upon by some more micro-organisms. Another bubble will be formed; it will be carried up to the top of the tank again, and the process will be repeated till all the organic matter has been consumed and dissolved and there remains nothing but ash—inoffensive mineral ash—on which microbes cannot feed. The deposit is very fine and inorganic. After seven months' working with a smaller tank the deposit was less than 4 in. over a surface of 24 ft. by 9 ft., and more than 2 million gallons of sewage had passed through the tank. The lighter solid particles which can float of themselves are decomposed as they float on the top of the tank. The intensity of the action is shown by the large bubbles of gas which in all directions break through the scum.

The result of this operation is a perfectly liquid affluent. It has a dirty yellow and brownish tint. Its contents are all liquefied. If thrown on the land it would not form the heavy, slimy deposit made by raw sewage. This water would be admirably suited for agricultural irrigation purposes, and sewage farms would be more easily managed if water from a septic tank of this description were utilised instead of raw sewage. The chemical action of the septic tank is set forth

by the analysis made by Mr. Frank P. Perkins, F.I.C., public analysist for Exeter. The specimens analysed were taken on April 13th last and the results were as follows, the figures given representing parts per 100,000 :—

—	Raw sewage.	Effluent from septic tank.
Temperature...	50° F.	51° F.
Alkalinity	35·5	25·0
Free ammonia	5·8	2·2
Albuminoid ammonia	0·95	0·35
Organic nitrogen...	1·65	0·53
Oxygen absorbed in four hours	3·21	1·454
Chlorine...	8·6	6·2
Nitrogen as nitrates	—	Mere traces.
Total solids	60·0	46·0

It will be seen, therefore, that the effluent from the septic tank contained what is valuable in sewage as manure and this in a form that can readily be assimilated by plants, while the absence of suspended matter will prevent the clogging of the soil.

As the liquefied sewage leaves the septic tank the second process of purification begins. The water has a slight odour—so slight, however, that it cannot be noticed at a distance of a yard or two. At the outlet from the tank there is a gauge which measures the volume of water passing. Thus at the moment of my visit the flow was equal to 70,000 gallons per day. From this gauge the water is taken into a trough, which is about six feet long. As it overflows both sides of this V-shaped trough it forms a thin sheet of water twelve feet in width. The air passes freely both behind and in front of this sheet of water and it is thus thoroughly aerated. Now it may be presumed that the micro-organisms within the septic tank belong to the anaerobic class and perform their work effectively because they can live without air or light. Their activity is now probably destroyed by the presence of oxygen, of air and light. In any case it is a most evident and remarkable fact that the sewage at once loses the slight odour it possessed on leaving the septic tank. Its passage over the sides of the trough by which it is well aerated suffices for this purpose. The time has now come to invoke the action of the aerobic microbes, and for them the presence of oxygen is absolutely indispensable. It is therefore necessary to reverse the process of the septic tank, and just as at first air and light were excluded, so now it is indispensable to obtain the maximum supply of both. By this means the anaerobic and then the aerobic micro-organisms will have been brought to bear upon the sewage, and each species will have in turn enjoyed those conditions that best favour their beneficent and vital activity.

From the aerating trough the sewage is discharged on to a filter. The purpose of the filter is not to strain the sewage. Straining is not necessary, for the sewage is now free from suspended solids. It is questionable whether raw sewage should be filtered, as it soon clogs the filters and renders them useless. The object of the filter in the treatment of the liquefied sewage is to facilitate the work of those micro-organisms that produce oxidation. The ammonia in the sewage is converted into nitric acid and combines with the bases present to form nitrates. The filters must be constructed with highly porous materials—coke, breeze, &c. Nor must the filtration be continuous. If the oxygen the filter contains were to be all consumed the nitrifying organism would be killed and the filter rendered worse than useless. The filter must rest, and if the rest given is as long as the time of work its purifying action will be maintained for an indefinite period. Consequently there must be duplicate filters. At Exeter there are five filters. They contain coke, breeze, and furnace clinker and are five feet deep. Altogether they cover an area of 400 square yards. The sewage from the septic tank is discharged simultaneously on to two filters. When these are full they are emptied of their contents, while the sewage flows on to two other filters. The fifth filter remains idle for a whole week, and then does the work of one of the other four, which in its turn has a week's rest. Thus every filter is at rest for one week out of every four weeks

From a practical point of view the method of filling and emptying these filters forms an important part of Mr. Cameron's patent. This is done automatically, which for many reasons is a great advantage. It saves the cost of labour, but, what is perhaps more important, it ensures with mathematical certainty the punctual working of the process. An attendant could turn the water on and off the various filters, but any negligence would produce disastrous effects, for the sewage, as yet insufficiently purified, would overflow and flood the whole place. The attendant would also be obliged to watch very carefully both night and day, for the volume of sewage that arrives is constantly varying; sometimes it is very slight and at other moments very considerable, particularly if it rains. All this trouble is avoided by the alternating gear Mr. Cameron has devised. Each filter corresponds with a small collecting well. As the filter fills with sewage, so the collecting well fills with filtered sewage. The level of the water is the same in both receptacles. When the filter is nearly full a small quantity of filtered water overflows from the collecting well into a bucket affixed to the shaft of the alternating gear and situated close to the row of collecting wells. The weight of the water in the bucket forces down the shaft, and this movement opens and shuts the valves which regulate the flow of the sewage and the discharge of the filtrate. One valve is opened so that the sewage in the filter which is full may pass out. It closes the valve which admitted the sewage into this filter and opens another valve to allow the sewage to pass into an empty filter. The bucket which in falling thus empties one filter and turns the sewage into another filter also raises another but empty bucket suspended to the opposite extremity of the shaft. This empty bucket places itself by the side of the overflow pipe from the collecting well of the filter which is now commencing to fill. To enable this second bucket to perform the same function as the first bucket, when in its turn it shall be full of water, it is necessary that the water contained in the first bucket should be emptied out. This is done by a counterbalancing arrangement which tilts the bucket up when it reaches its lowest position; but there is a lip in the bucket which catches some of the water and prevents its being completely emptied. Thus the bucket is still heavy enough to keep its end of crossbeam or shaft down till the bucket at the other end acquires greater weight by being filled with water. The first bucket is then brought up once more. A see-saw motion is therefore established, which alternately fills the buckets as the water reaches a certain level in the corresponding filters. Two alternating gears of this description keep the four filters automatically in action, turning sewage on and the filtrate off as the filters fill and empty. If the sewage comes quickly the buckets are more frequently overbalanced by the weight of the water that fills them; if it flows in slowly the alternating gear does not work so often. The success of the operation does not therefore depend on the watchfulness of an attendant. The works can be left for hours, even for days, without anyone going near them. It is only at the end of the week, when the fifth filter, which has been resting, is brought into use, that someone must establish the connexion and disconnect the filter, which in its turn has to rest.

There is one part of the process in which an improvement might possibly be effected. The system of filtering consists of filling the filter up to the brim, the alternating gear is then set in motion, a valve is opened underneath the filter, and the water is drawn off suddenly. The greater part of the water rushes out with considerable velocity. It is somewhat turgid in appearance, but the following is the result of analyses. We have already seen what were the contents of the raw sewage and of the effluent from the septic tank when examined on April 13th last. Now the result on the same day of the filtrate was as follows in parts per 100,000: alkalinity, 21·4; free ammonia, 0·5; albuminoid ammonia, 0·1; organic nitrogen, 0·14; oxygen, absorbed in four hours, 0·324; chlorine, 6·4; nitrogen as nitrates, 0·544; total solids, 64. Mr. Samuel Rideal, D.Sc. Lond., F.I.C., took a sample of the filtrate on the previous day—namely, April 12th last—and his analysis is set forth as follows per 100,000 parts: total solids, 76·8; mineral matters, 57·1; organic loss on ignition, 19·7; chlorine, 7·25; nitrogen as nitrates, 3·72; nitrates, strong; free ammonia, 0·0124; albuminoid, 0·044; oxygen, consumed in four hours at 80° F., 0·324; total organic nitrogen estimated by Kjeldahl's process, 0·066. This analysis shows that the amount of organic nitrogen contained in the filtrate was five times less

than 0·3 parts per 100,000, which is the amount the Rivers Pollution Commission suggested might be allowed. So far so good; but the question arises whether a further improvement might not be realised by modifying the manner in which the water is drawn off from the filters. The greater portion comes off with a rush as it leaves the larger filtering spaces and, as already stated, is somewhat turgid, but the remaining and smaller quantity which flows slowly out is marvellously clear. It is beautiful crystalline water and perfectly transparent when held up in a glass. It is much better in appearance than the water of the river. Perhaps if the aperture from the filter were reduced in size so that the water should flow out slowly the filtering might be more effective. On the other hand, it may be argued that as the water for the most part rushes out of the filter with considerable velocity it produces a strong down-draught which helps to charge the filter with a good supply of oxygen. Is this necessary? Would not sufficient air penetrate of its own accord when the filter is empty? The space vacated by the water must be filled up by air, however slowly the water flows. If more air is required, then a forced draught could be established by some artificial means.

With regard to pathogenic organisms, which may be present in sewage, it must be borne in mind that they require special conditions of food and temperature so as to propagate their species. But here they are exposed first in a dark and airless tank; and if this does not prove fatal they must then endure the very opposite treatment—the free exposure to light and air and the powerful oxidising agents in the depths of the filter. As Mr. Cameron observes: "The experiments of the Massachusetts State Board of Health prove that the chances of microbes surviving the passage through a filter are infinitesimal." Nor is the sojourn in the septic tank of brief duration. To show that the sewage is diffused throughout the whole of the tank and does not make a bee line from inlet or outlet raw sewage as it entered was coloured with fuchsine, and it was not until after from eighteen to twenty hours that the traces of fuchsine at the outlet ceased to be visible.

Such are the main features of the experiment which the Exeter sanitary authorities have made, first on a small and now on a much larger scale. At Yeovil also a similar treatment of sewage has just been established, and there the sewage is strongly charged with manufacturing refuse. Nevertheless, the results are said to be equally satisfactory, but it is too soon to pronounce a definite opinion. In any case, the theory on which the process is based is most interesting and the results attained so far are very encouraging.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Lunacy Fees in Prescot Union.

AN attempt to rescind the resolution which was recently carried by the Prescot board of guardians recommending the magistrates in the union to reduce from a guinea to half a guinea the fee paid to medical men for certifying pauper lunatics, was, unhappily, defeated. Several guardians expressed the opinion that a guinea was a fair and reasonable fee. The member who introduced the original resolution pointed out that the reduced fee would only apply to ordinary cases and that the guinea fee might still be allowed in special cases. This classification of fees must lead to confusion, as the same care will require to be exercised in the examination of all patients, and the certificates, whether in ordinary or special cases, must be equally precise and explanatory in order to meet the requirements of the Commissioners in Lunacy.

Munificence of the late Lord Mayor.

Lord Derby has signalised the termination of his year of office in the Lord Mayoral chair by an act of generosity which does him honour. In declining the annual allowance of £2000 in delicate and graceful terms his lordship, whose conduct in the civic chair was distinguished by an urbanity of demeanour combined with an affable dignity, has shown a public spirit worthy of imitation by others equally favoured in rank and affluence. The above sum has been divided among the medical charities (with the exception of £200 given to two other objects) in the proportions recently adopted by the distributors of the Hospital Sunday Fund. A general feeling of regret has been felt at his Lordship's termination of office, and he carries with him the good wishes of the citizens of Liverpool in a well-earned rest after a really arduous twelve months of useful work.

Corporation Sanitary Inspectors.

The Works Sub-committee of the city council have recommended that future candidates for the post of sanitary inspector under the corporation should hold the sanitary certificates granted by the Victoria University. The recommendation has been endorsed by the council.

Health of Liverpool.

The medical officer (Dr. E. W. Hope) reported the registration during the week ending Nov. 21st of 406 births and 356 deaths, the latter representing a rate of 28·8 in the 1000 per annum. Of the total deaths 88 occurred in hospitals and 113 were those of children below five years of age. Diseases of the lungs accounted for 117 deaths, tuberculous diseases for 33, brain diseases for 31, heart diseases for 24, liver diseases for 25, and zymotic diseases for 34. There were 182 infectious cases notified during the week and 28 were discovered by the committee's officers; and 444 patients were under treatment at the city hospitals.

Medical Students' Dinner.

The annual dinner of the medical students of University College, Liverpool, took place at the Adelphi Hotel, Liverpool, on the evening of the 21st ult. Professor Paterson occupied the chair, whilst the vice-chair was filled by Mr. W. Thelwall Thomas, assistant surgeon at the Royal Infirmary and a former student of the college. About 120 gentleman, including guests, sat down to dinner. The evening was enlivened by an excellent musical programme. The medical students' dinner has become a very popular gathering, the attendance improving annually. The students are always glad to welcome their teachers on these festive occasions, and it would have been a source of gratification to them had a larger number been present.

Specialism in Southport.

Southport has recently become possessed of a hospital for the special treatment of diseases of the eye, ear, and throat. The committee of the Southport Infirmary thereupon have raised a note of alarm, and point out to their subscribers that the institution of another hospital in Southport is unnecessary, as provision for the treatment of such cases has already been made in the infirmary, and although special appointments have not yet been made, it has only been because of the extra work which was entailed in consequence of removal to the new premises and the revision of the by-laws. Considering the proximity of Southport to Manchester and Liverpool, where such ample provision for the treatment of diseases of the eye and ear exists, together with the opportunities about to be afforded by the establishment of special departments in the older institution, it seems nothing short of a waste of money to multiply hospitals and thus to add further to the calls on the charitably disposed. It is not to be wondered at that the committee of the Southport Infirmary are in a state of indignation and are in dread of their subscriptions being diverted.

Dec. 1st.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Coroner on Moderate Drinking.

AT an inquest held on Nov. 27th the city coroner, Mr. Oliver Pemberton, said:—"Such cases as this lead one to cease to have any wonder that men and women should give themselves up to total abstinence as an example and unselfishly doing so, he believed, at the risk of their health. A limited amount of alcohol was desirable at certain periods of life. He was well acquainted with the late Sir B. W. Richardson and he felt that his life was more or less unselfishly devoted as an example to others and that he would have been benefited by the moderate use of alcohol, having regard to the climate of England and to the work that he did. His total abstinence for twenty years probably shortened his life." It is hardly to be wondered at that this statement should be challenged by the friends of total abstinence, and that such utterances from a

high public position upon an important question should not be allowed to pass without criticism.

The Steam Whistle Nuisance.

Certain grievances periodically come up for ventilation and comment. Among these a prominent disturber of rest and quietness is the steam whistle or "hooter." At a meeting of the Watch Committee recently held the chief constable reported that in the city fifty-one steam-whistles were in use. The frequency and length of time these whistles were blown varied considerably; the average length of time of the whole number was thirteen seconds; the average of the number of times they were blown during the day was 5 4. Some could be heard much further, being more powerful, than others. There were also a number immediately outside the city in different districts. It is proposed that some steps should be taken to amend the disturbance caused by some of these, for no doubt many of the resulting noises are unnecessarily loud and prolonged. A licence to be granted by the Watch Committee is a proposed remedy to some extent of the evil, though a minor one. In a manufacturing town the advantages to the many must evidently preponderate over the comforts of the more sensitive few, to the wear and tear of their nerves and loss of their tranquillity.

Shop Assistants.

Some startling figures have been brought forwa d to prove the length of time during which shop assistants in certain establishments where no fixed regulations are enforced on their behalf are worked. Facilities for mental improvement and physical or social recreation are thus kept away from a large number. An Early Closing Bill would greatly help by legislation the avoidance of such evils, though the restrictions could be better removed by a voluntary understanding on the part of the employers and employed. The tendency to legislate for details affecting the action of employment appears to be growing in proportion to the over-production of population in our midst and the never-ending cry of competition.

The Boracic Acid Question.

In recent communications to THE LANCET mention has been made of certain prosecutions where fines were inflicted for the use of boracic acid with certain articles of food. A deputation comprising the wholesale provision dealers and butter importers in this town lately waited upon the Health Committee for the purpose of discussing the matter of prosecutions of persons for selling butter containing boracic acid. It was pointed out that while anxious to conform to the law it was an important subject as affecting the food supply, because boracic acid was used as a preservative in many articles of daily consumption. It had not as yet definitely been proved that the use of boracic acid was injurious; and as it was absolutely essential that a preservative should be used in the case of imported butter, they asked that no further prosecutions should take place until a more definite and authoritative statement had been made respecting the chemical properties and the effect of boracic acid on food and the consumers. The committee discussed the matter at considerable length, and eventually informed the deputation that they would order no further proceedings until additional information had been obtained.

Dec. 2nd.

WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Annual Distribution of Prizes at University College, Bristol.

THE annual distribution of prizes in the Faculty of Medicine of University College, Bristol, took place on Nov. 24th in the medical library of the College. Mr. Albert Fry, chairman of the council, presided, and in his address to the students said that he occupied the present position at the request of the Faculty of Medicine. The Council were extremely anxious that the medical department, now that it was housed in such handsome buildings, should continue worthy of its old reputation and should also make full use of its present advantages. The prize list indicated that there were students there who would prove to be men of distinguished career. Every facility was thus afforded for the requirements of a complete and thorough education, and students could not too clearly bear in mind that now was the time when the foundation of their future life would be laid. It should be their aim by their diligence to make the college one of the most eminent schools of medicine in the United Kingdom, and in advancing its reputation they would do honour to themselves and promote their own success in after life.

The Swansea Manslaughter Case.

The jurymen have all signed a petition praying for the alteration of the sentence in the case of Timothy Jones, M.D. Aberd., and it has been decided to forward this to the Home Secretary and, failing success, to bring the subject before Parliament. Mr. Justice Mathew has altered his sentence on Richards from five years' penal servitude to two years' hard labour.

The Basingstoke Cottage Hospital.

The Mayor of Basingstoke (Lieutenant-Colonel J. May, J.P.) has recently opened a new wing to the Basingstoke Cottage Hospital which he erected and furnished at his own cost.

Bequest to Swansea Hospital

Swansea Hospital benefited to the extent of about £5000 by the death of Sir William Grove, whose will has just been proved. The legacy does not figure in the will, however, as the real donor was the uncle of the deceased, but the money was contingent upon the death of the nephew.

Death from Coal-gas Poisoning at Bath.

A lady and her maid have recently died from coal gas poisoning at Bath. They were found unconscious in the bed-room on Nov. 21st; neither of them rallied, the servant dying on the day following, and the mistress on Nov. 23rd. Evidence showed that the gas was turned on in the drawing-room and had escaped into the room where the victims were found, through a hole in the ceiling just above the chandelier. The jury returned a verdict that the deaths had occurred from "coal-gas poisoning."

Barras Head, Cornwall.

The appeal for funds to purchase Barras Head, to which allusion was made recently in these notes, has been successful. The National Trust for Places of Historic Interest has received donations amounting to £505, the sum required for the purchase of the land; and consequently the land will become the property of the Trust, who will hold it as an inalienable public possession, and the bold Cornish promontory overlooking and affording the best view of the famous ruins of King Arthur's Castle, Tinganek, has been saved from the speculative builder.

Dec. 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Retirement of Sir Douglas Maclagan.

IT will be with a feeling of regret, although not of surprise, that the news of Sir Douglas Maclagan's retirement from the duties of the chair of Forensic Medicine will be received. Sir Douglas Maclagan has been identified with Edinburgh University for so many years that many generations of old students know him as their teacher. No occupant of a chair in the University has had a more honourable and stainless career, and this, coupled with a charmingly genial and courteous demeanour, have given him the affection, esteem, and admiration of his brethren in a degree which does not fall to many men. He will carry with him the kindly wishes of many into his retirement. Already rumour is rife as to his successor, and several candidates are in the field, of whom Sir Henry Littlejohn, the medical officer of health for Edinburgh, is one. It is hoped that the University authorities may see their way to dividing the duties of the chair and appointing separate teachers of medical jurisprudence and of public health. The combination is too antiquated for our present ideas of things and is too much on a par with a curious combination of medical jurisprudence and midwifery which until recently were combined in certain examinerships.

Glasgow Coöperation for Trained Nurses.

The annual meeting was held on the 25th ult., Mrs. A. A. Ferguson, vice-president, being in the chair. The financial position, as stated in the report, showed an advance upon last

year, the income having increased by £679 10*s*. One nurse earned over £80, six over £70, and the greater number from £50 to £60. Professor Joseph Coats, in supporting the adoption of the report, stated that the association was now almost self-supporting, and he hoped that soon it would be entirely so. Their principle had always been that the nurses should support, and as far as possible should manage, the association for themselves.

Glasgow Maternity Hospital.

The annual meeting of the contributors was held on the 24th ult., Mr. Robert Gourlay being in the chair. The medical report by Dr. Oliphant showed that 2620 cases had been attended during the year, being an increase of 34 in the in-door and a decrease of 101 in the out-door cases as compared with the figures of last year. The students in attendance had numbered 106 and 56 nurses had received training and diplomas. The chairman urged the claims of the hospital on the public and stated that it was absolutely necessary that the hospital should be enlarged in order to meet the demands made upon it. Professor Murdoch Cameron supported the appeal made by the chairman.

Western Infirmary, Glasgow.

The twenty-second annual report was submitted to the subscribers on Nov. 26th. The number of patients treated during the year was 4942 in-door and 14,136 out-door. The average period of residence was 31 02 days, the average cost per patient was £4 14*s*. 10½*d*., and the average cost per bed occupied £55 19*s*. 7½*d*. The ordinary income, £16,653 15*s*. 3*d*., was insufficient to meet the ordinary expenditure for the year by £4898 9*s*. 2*d*., and the extraordinary income had to be drawn upon to this amount. Attention was drawn in the report to the opening of the new Pathological Institute, and the managers express their indebtedness to Lord Overtoun, Mr. James Stevenson of Hailie, and the Bellahouston trustees, by whom the sum of £10,000 needed for the erection and equipment of the new surgical theatres had been contributed.

Opening of Gartloch Asylum.

The new asylum erected for accommodation of the Glasgow lunatic poor by the City Parish Council is now completed and was formally opened on the 26th ult. The building has been in course of construction for upwards of six years, and has cost £150,000. In provides accommodation for 300 patients and a staff of 150. The formal ceremony of opening was performed by Councillor Finlay, the chairman of the District Lunacy Board, who was presented with a gold key in honour of the occasion. The visitors were subsequently entertained at luncheon.

Medical Vacancies.

Mr. R. M. Beattie, M.B., C.M. Glasg., has resigned his appointment as medical officer of Inverary. There is a vacancy on the surgical staff of the out-door department of the Victoria Infirmary, Glasgow. Mr. John Angus Cameron, M.B., C.M. Glasg., has resigned his position as medical officer under the Inverkip Parish Council. The appointment of assistant resident medical officer to the Riccartsbar Asylum, Paisley, is advertised as vacant. The parish council of the island of Colonsay are desirous of appointing a medical officer to reside on the island. Mr. R. Wilson Bruce, L.F.P.S. Glasg., has intimated his resignation as casualty surgeon to the Northern Police District, Glasgow, on account of ill health. Miss Aitken, of the Lancashire County Asylum, has been appointed matron of Glengall Asylum by the Ayr Lunacy Board.

Election of Direct Representative for Scotland.

The election has excited but a very languid interest in the west of Scotland. There has been one meeting of medical practitioners, but as it only included twenty individuals all told its decision can scarcely be quoted as the verdict of the profession any more than the fiat of Tooley-street was the voice of the people of England. Some of the supporters of Dr. Campbell Black have tried to stimulate activity by letters to the local press, but their efforts do not appear to have been very successful. At all events the opposition has not been stirred to combat. Whether frightened by the energetic declamation of the newspaper contributors, or disposed to regard such efforts with indifference, does not appear. But in spite of repeated invitations the other side have steadily declined "to tread on the tail of my coat."

Dec. 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Mercer's Hospital, Dublin.

NOTHING definite has yet been made public, but it is known that the differences which have existed for so many years between the staff of governors and the medical staff have recently reached such a pitch that the internal affairs of the institution are likely very soon to become again the subject of expensive litigation.

The Ulster Medical Society and the Health of Belfast.

At a special meeting of the Ulster Medical Society, held on Nov. 23rd, after a long discussion it was decided to send a deputation to the Public Health Committee of the City Corporation, consisting of the following: the President (Professor Symington), the Secretary (Dr. McKisack), Dr. Dempsey, J.P., and Dr. M'Farland, and these gentlemen met that body on Nov. 26th and presented the following as the views of the society:—

"The Ulster Medical Society consider the present time opportune for renewing the efforts they have made from time to time to support the sanitary authorities in their endeavours to effect various improvements in the public health of the city. The members of this society have always heartily approved of the principle of notification of infectious diseases (for example, on Dec. 4th, 1889, they passed a resolution approving of notification under suitable conditions). They have, however, always foreseen insuperable difficulties in the practical working of the Act under the conditions hitherto existing, which were, firstly, infectious diseases to be notified to officials of the Poor-law Board, whilst the executive sanitary authorities were the Public Health Department of the City Council. In view of this anomaly our society memorialised the Lord-Lieutenant of Ireland in January, 1890, to have the notification placed in the hands of the medical superintendent of health for the city. The second unfavourable circumstance was the absence of suitable accommodation for the treatment and isolation of cases of fever after notification. On these two grounds the members of this society have until now objected to the immediate adoption in Belfast of the Notification of Infectious Diseases Act. The removal of these difficulties by, firstly, the change in the authority to whom notification shall be made (provided for in the recent Acts; and, secondly, the proposed erection of a fever hospital, enable this society to heartily recommend to the city council the adoption of the Notification of Infectious Diseases Act in Belfast as soon as possible.

"This society has consistently urged the establishment of a hospital for infectious diseases. We may recall the fact that as far back as December, 1889, a deputation from the society waited upon the city council to urge the necessity of such an institution, and that in May, 1891, and in April, 1892, they reiterated their convictions upon the subject. They now observed with satisfaction that the erection of this hospital has been decided upon by the corporation, and they would respectfully urge upon that body the propriety of proceeding with the work without delay and that the new hospital should be in all respects adequate to the wants of the community. Whilst urging these necessary reforms upon the city council the Ulster Medical Society beg to enter their protest against the site selected at Purdysburn for the new infectious diseases hospital as being altogether too far removed from the densely populated districts of the city. The society would also respectfully urge upon the corporation the necessity of pressing forward the work of sanitary reform, the most urgent items of which have been from time to time indicated by Dr. Whitaker in his various annual reports."

Puerperal Fever in the Maternity Ward of the Cork Union Hospital; Serious Condition of Affairs.

The following joint report by the three medical officers of the Cork Union Hospital was submitted for the consideration of the guardians at their last meeting:—"We beg to report that six cases of puerperal fever have occurred in the Maternity during the past four weeks with three deaths. Every possible means have been taken by disinfection, changing the nurse, &c., to prevent these cases occurring, but without success. We are of opinion that the mortality will continue until a hospital constructed on approved sanitary principles be erected. In our previous report of Aug. 12th we mentioned seventeen cases with four deaths as occurring since August, 1893." Dr. Cummins appeared before the Board and said it was positively dangerous to have any woman confined in either of the two buildings now at the disposal of the medical officers. He recommended the building of a proper maternity ward that could be thoroughly disinfected. There are no baths in the old ward nor are there proper means of keeping it clean. One of the structures is made of wood, an absorbent material, and therefore the germs remain on the walls. He suggested that for the present labour cases should be sent to the Lying-in Hospital in Nile-street. The Board decided that labour cases presenting themselves for admission to the Union Hospital shall be sent to the Nile-street Hospital at the expense of the guardians till such time as suitable arrangements

will have been made for the reception of such cases in the Union Hospital.

Important Prosecutions under the Food and Drugs Act.

An old woman, a meat vendor, was charged at the Cork Police-court by the corporation with selling meat unfit for human use. The article complained of was beef in a state of putrefaction. The inspector described it as "a kind of foreign stuff of a most unsightly appearance. It was dark, looked like bread, and had a very offensive smell." The solicitor for the corporation said the offence was a very insidious one, and that it was very hard to catch the people who committed it. The Bench inflicted a penalty of 20*s.* and costs, with the alternative of fourteen days' imprisonment.

Dec. 1st.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Leprosy in Eastern Prussia.

IN THE LANCET of May 23rd, 1896 (page 1461), I mentioned that the existence of leprosy had recently been discovered in the district of Memel, in Eastern Prussia. Dr. Blaschko, a Berlin dermatologist, who had visited this part of the country, drew the attention of the profession to the fact that the disease was spreading and that the local authorities were apparently not careful enough in the matter. The local newspapers were at first inclined, in the interests of the district, to minimise the prevalence of the disease, but their statements were contradicted by two Memel practitioners, Dr. Pindikowski and Dr. Koch, who maintained that the number of cases was much greater than the official figures showed. They said that many of the country people suffering from the disease had never come under medical observation, and they were of opinion that there probably were at the present time twice as many patients as there were a few years ago. Dr. Koch, who had been for several months in Norway studying this disease, suggested some rather energetic measures—notification and registration of all cases, compulsory isolation of patients in special hospitals, and the keeping of a close observation on the adjoining Russian territory from which the disease had been introduced. The Imperial Health Office accordingly commissioned Dr. Wassermann to enquire into this question, and the Government has now determined on the erection of a special hospital in the district, until the completion of which the lepers are to be received into the Königsberg University hospital and into the Institution for Infectious Diseases under the care of Professor Koch. The lay press, moreover, have also been calling for the exercise of greater precautions since a case of leprosy was discovered in Charlottenburg, a suburb of Berlin; and although this case was in no connexion with the leprosy centre of Eastern Prussia, but was imported from Brazil, the public were rather alarmed. As the medical profession was of course very interested in the leprosy question Dr. Havelburg, a German practitioner of Rio de Janeiro, who happened to be in Berlin, was invited to read a paper on this subject in the Berlin Medical Society. He said that the disease had been imported into Brazil by Portuguese immigrants and that its greatest prevalence was at the end of last century, when the erection of special hospitals became necessary. No nationality is exempt—Europeans, half-castes, and negroes are liable to fall victims. The Brazilian law allows patients to be removed into hospital irrespective of their consent, but in fact only poor people are thus dealt with. Lepers may often be seen in the streets, the cafés, and other public places. The leprosy bacillus was found in every instance, but cultivation of it has hitherto been impossible. In Hawaii Dr. Arning succeeded in inoculating leprosy in a criminal sentenced to death, and contagion is, in fact, very probable. The disease sometimes shows itself only after a rather long period. For instance, a cook became affected after thirty years' service in the Rio de Janeiro Hospital. The poorer classes are specially liable to catch leprosy, but it is by no means entirely confined to them. Medicine is useless. The celebrated dermatologist, Dr. Unna of Hamburg, once published an alleged cure of a patient, but this man afterwards died from leprosy in the Rio de Janeiro Hospital. The disease is very much spread by the shipping traffic, especially by steerage passengers, who live under very bad hygienic conditions. In the discussion Professor Virchow expressed his opinion that leprosy must have existed in prehistoric times, for figures on old terra-cotta pottery sometimes show mutilations which are just like those caused by leprosy. He would not totally deny hereditary influence. Professor von Bergmann, who had formerly had ample opportunity to see leprous patients in Russia, pointed out that a district often becomes infected when a leprous person settles there, a circumstance which proves that the disease is very contagious. Dr. Köbner thought that exaggerated opinions had been expressed on the subject of infectiousness, for children suckled by a leprous mother often remain healthy. Dr. Koch said that this alleged immunity is present only in the northern climates. In the tropics all classes are a prey. Professor Liebreich recommended treatment by injections of cantharidin. As in lupus, so in leprosy, success would ultimately be attained. Dr. Havelburg, in replying, mentioned that he had discovered leprosy bacilli in vaccine pustules after having vaccinated the inmates of the hospital at the time of a cholera epidemic. The cantharidin treatment had proved totally useless.

The Medical Service of the Navy.

According to a recently issued Imperial order the conditions of admission to the medical service of the navy will be modified. Hitherto young men desirous of becoming military or naval medical officers had to enter the Emperor William Academy at the beginning of their course of study. This is an army and navy medical school, connected with Berlin University and supported by the Government, but it will in future be reserved for the training of army medical officers only, and vacancies in the medical service of the navy will henceforth be filled exclusively by duly qualified men who have studied at their own expense in the usual way, and consequently have had free choice in the selection of their universities. Civilian practitioners have never been excluded from the naval service, but it has been rather exceptional for them to make application to enter it, as preference was given to men who had studied at the Emperor William Academy. This restriction is now at an end, and many young medical men will, no doubt, take advantage of the opportunity of entering the navy.

A Charlatan Punished.

IN THE LANCET of Aug. 8th, 1896 (page 416) I reported the singular proceedings of a qualified medical man who was dishonest enough to practise as a charlatan. The trial, which has just taken place, was very interesting. It was stated that he undertook to cure patients without seeing them, and that on receiving a written description of their symptoms he sent them bottles of one or other of the five secret remedies which he prescribed. At first he answered the letters himself, but by-and-by his practice became so extensive that he had to employ clerks, all of them uneducated persons—ex-waiters, tailors, and so forth—who decided which of the medicines were to be administered. He received more than 100,000 letters in a year and his annual income was about 400,000 marks (£20,000). Among his patients were members of the nobility and even a princess of a reigning family. His lucrative business might have continued to flourish had he not been unfortunate enough to cause the death of a patient by preventing a necessary operation. He was condemned to four years' imprisonment and a fine of 6000 marks (£300).

Nov. 30th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The King Humbert Hospital at Monza.

"THESE are imperial works and worthy Kings." The familiar verse will rise to the minds of all visitors to the palatial town of Monza now that the Royal residence has found a near neighbour in a Royal hospital, constructed on the initiative of King Humbert, whose name it appropriately bears. At first His Majesty was importuned to erect an educational establishment on the site, but the feeling in favour of the hospital was too powerful to be gainsaid, and accordingly, since the settlement of the controversy in 1893, a noble building for clinical purposes, medical and surgical, has steadily advanced to completion, and was formally opened yesterday in the presence of their Majesties the King and Queen. Rising to the west of the town, and

covering an area of 44,758 square metres, it can already accommodate 208 patients, with space still free for eighty more, bringing up the beds to 288. The 208 now available are distributed in eighteen pavilions facing due south and nearly all roofed with iron, while the areas between are artistically laid out in gardens of evergreens intersected with pleasant walks. The façade of the hospital forming its administrative offices is nobly severe in proportion and decoration, after which come the various departments for the non-medical working of the hospital. These include an oratory, followed by an admirable series of baths and douches, succeeded in turn by ample arrangements for cooking and laundry purposes. Then come the apartments of the nursing sisters and female attendants. On its inner aspect the building is occupied by the several pavilions—two for ordinary patients, one for general surgery as applied to men, two for operative surgery, two for tuberculous diseases and infective maladies not epidemically diffusible, two for chronic cases, male and female, and one isolated for "malattie diffusibili." In appropriate *locales* there is separate accommodation for "scabbiosi," for special operations, for the disinfection of bedding and linen, for the laying out of the dead, and for the "servizi rustici" (stabling and wheeled conveyances). The whole structure is finely ventilated from top to bottom, the latter provided with "sotterranei" admitting of a free passage of air, obviating any noxious exhalations from below. Heating, lighting, water-supply, drainage—all have been specially arranged by experts—complete the appointments of the "Ospedale Umberto I.," which redounds so signally to the credit of its designer, Ercole Merlo Balossi, engineer, of Milan, and its constructors, the Signori Galbiati and Bonalumi, master builders. The opening ceremony was worthy of the institution and its object, every interest—clerical and lay, professional and municipal—being represented, and a large concourse of the industrial and labouring classes seemed to furnish ocular demonstration of the social stratum the hospital was primarily designed to rescue or relieve.

"*Septoria Castanicola*."

The unprecedented rainfall of the late summer and early autumn has had disastrous consequences, nowhere more than in the agricultural industry. This year's vintage, with few exceptions, has been of the poorest, and now we hear of another visitation which must bear heavily on the rural interest. This is the "chestnut rot," which, technically called "septoria castanicola," is due to a fungus or microscopic parasite known since 1847 and always developed in sympathy with excessive moisture. From upper and central Italy alarming intelligence has reached the Ministry of Agriculture as to the injury done to the chestnut crop, which in some localities is well-nigh destroyed. Professor Cuboni, director of the Institute of Vegetable Pathology, has inspected the various scenes of the disaster, and provisionally reports that the "malattia" presents no new feature, but that it is simply an exceptionally severe form of the well-known "septoria castanicola." Next year, he adds, the damage may be retrieved by the return of normal weather. Meanwhile, there is little doubt of this, that the failure of an esculent on which the population, urban as well as rural, so largely depends will have effects in some degree parallel to those of the potato blight in Ireland.

Academic Troubles.

Professor Labriola, whose ill-advised discourse had so disquieting, not to say mischievous, an effect on students already all too prone to mingle party politics with their proper work, has received from the Minister of Public Instruction a pointed reprimand, in which His Excellency animadverts on the extreme unfairness (to say the least) of the Professor's conduct in attacking the Government in the person of one of its members, from whom the right of reply was withheld. As might have been expected, the more turbulent of the "Burschenschaft" have resented this proceeding on His Excellency's part and made sundry attempts to give play to their feelings at the expense of academic discipline and public order. For these, however, the authorities were prepared, and after a tumultuous conference, in which it turned out that His Excellency had many sympathisers, a resolution protesting against his interference with liberty of speech was carried by a considerable majority. The incident, it is to be hoped, will now die a natural death; meanwhile, it has had the gratifying effect of evoking from all but the inferior press a severe comment on the academic ideal entertained by so many *alumni* of the metropolitan seat of learning. Easy examinations, leaving ample leisure for political "distractions," seem to sum up their notion of undergraduate life, as more than one ex-Minister of Public Instruction has experienced to his cost.

Nov. 27th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Serum Treatment of Diphtheria.

AN article contributed by Dr. Hilbert to a new Vienna medical journal, the *Heilkunde*, contains the best account which has hitherto appeared in the Austrian periodical on the subject of the present state of the serum treatment of diphtheria. According to Dr. Hilbert the amount of antitoxin administered in a case of mild diphtheria without any complications ought to be 1000 units (No. II. Behring), while in cases attended with abundant formation of membrane in the pharynx and complications in the nose and larynx an injection containing 1500 units (No. III. Behring) ought to be given all at one time. The shorter the interval that has elapsed since the first appearance of the symptoms the less toxin has been produced by the bacilli, and on this ground Dr. Hilbert advocated early injection, supporting his opinion by statistics, an analysis of which yielded the following results. When the serum treatment of diphtheria was commenced on the first day of the illness there were 5 deaths among 225 cases (2·2 per cent.); when it was commenced on the second day there were 59 deaths among 770 cases (7·6 per cent.); when it was commenced on the third day there were 82 deaths among 479 cases (17·1 per cent.); when it was commenced on the fourth day there were 83 deaths among 349 cases (23·8 per cent.); when it was commenced on the fifth day there were 77 deaths among 227 cases (33·9 per cent); when it was commenced on the sixth day there were 45 deaths among 132 cases (34·1 per cent.); and when it was commenced on the seventh day and at later periods there were 94 deaths among 246 cases (38·2 per cent.). Commenting on these figures, and remarking that the inconveniences caused by an injection are very slight, Dr. Hilbert advised immediate injection in doubtful cases of illness without waiting for bacteriological confirmation of the diagnosis. Injection of serum does not cause a sudden fall of temperature; diphtheria, moreover, has no typical temperature-curve, for slight cases are not unfrequently attended with high fever. It sometimes happens that children who have received injections in the evening wake up next day without any fever, but when the injections are given about noon there is usually a rise of temperature in the evening. Sometimes, on the other hand, the temperature increases the day after the injection, but falls on the third day and subsequently remains normal. When the fever goes on increasing two days after the injection this is an indication that the amount employed was insufficient, and a further administration should be resorted to. Antitoxin has no special action either on the pulse or the heart; irregularity of the pulse and weakness of the heart are not due to the serum, but are caused by the diphtheria impairing the power of the heart muscle. Antitoxin has the effect of causing the false membranes in the pharynx to assume a somewhat yellow colour, they become loose, shrink, and are cast off after three or four days, exposing a reddish base. In children with stenosis of the larynx the effect of serum treatment is very favourable. Such cases formerly required surgical interference, emetics, and inhalations, notwithstanding which death frequently resulted, especially when tracheotomy had been objected to by the parents. In such laryngeal cases 1500 units of antitoxin ought to be injected at once, and Dr. Hilbert knew of seven children having been saved by injection without any operation. Since the introduction of the serum treatment intubation has to a considerable extent replaced tracheotomy, over which it has the advantages of being a bloodless operation and one not requiring assistance for its performance. Its only drawback hitherto observed has been the occurrence of ulcers in the trachea due to pressure; but this disadvantage is less troublesome than formerly, because under the influence of the serum the stenosis rapidly improves and the tube may be withdrawn at

a comparatively early period. The good effect of the serum is conspicuous in the case of patients suffering from prostration and stupor, the relieving of which symptoms is one of the most important benefits conferred by this treatment. When antitoxin was introduced into practice some two years ago the objection was made to it that it caused nephritis, but experience has shown that nephritis is not more common now than before. The increased prevalence of post-diphtheritic paralysis is, in Dr. Hilbert's opinion, really an argument in favour of antitoxin, being due to the fact that many of those who formerly would have succumbed to the disease are now saved, in proof of which he quoted statistics showing that the diphtheria death-rate decreased from 14·3 per cent. in 1893 and 29·6 per cent. in 1894 to 6·3 per cent. in the first year of the employment of the serum treatment. Moreover, during the epidemic at Sereth in Bukowina from June to August, 1894, the mortality among 36 children treated with serum injections was 11·1 per cent., whereas among 126 children not treated by this method it was 38·9 per cent. In October of the same year another epidemic broke out, in which before serum was used the death-rate was 59 per cent., but after the serum treatment was resorted to it fell to 11·6 per cent. Dr. Hilbert recommended that prophylactic injections should contain 200 or 300 antitoxin units, and he quoted statistics collected by Schober, according to which there were before the introduction of the serum treatment 430 secondary infections among 263 families (i.e., 1·6 infection per family), whereas after the use of prophylactic serum injections only 21 secondary infections occurred among 187 families (i.e., 0·11 infection per family).

A New Pathology of Jaundice.

According to the new theory of jaundice suggested by Dr. Pick, and described by him before the Vienna Medical Society, the cause of the disease is to be sought for in the liver where the bile is formed, and consists in a disturbance of the function of the liver cells. These cells have the remarkable selective property of discharging bile into the bile capillaries only, while both urea and sugar pass into the blood. This function, however, may sometimes be disturbed, with the result that a part of the bile is discharged into the lymph capillaries. Dr. Pick has given the name of paracholia to this disturbance, which he considers may be caused either by abnormal irritation of the secretory nerves of the liver (nervous paracholia) or by toxic substances (toxic paracholia). The toxic substances may be either poisons introduced into the organism from without, or, on the other hand, they may be produced by bacteria, whether those of the intestine (paracholia by anto-intoxication) or pathogenic micro-organisms (paracholia by infection). The jaundice of bilious colic is an instance of nervous paracholia, the jaundice of the new-born infant is a case of paracholia by auto-intoxication, being, in Dr. Pick's opinion, due to the influence of toxins generated in the intestines in consequence of the taking of food. Catarrhal jaundice is an example—and, in fact, the most remarkable one—of paracholia by infection; it may, therefore, be regarded as a zymotic disease of the intestine In the discussion which followed Professor Basch remarked that jaundice may arise from engorgement of the bile passages. Dr. Pal, while agreeing with some parts of Dr. Pick's theory, said that no secretory nerves have hitherto been found in the liver, whereas, according to Vulpian, irritation of the nerves passing from the cœliac plexus to the liver causes a change in the colour of the gland. Dr. Pal himself has proved that an effect may be produced on the liver vessels by the splanchnic nerves; the liver has only vaso-motor nerves, not secretory nerves. Dr. Pick, in his reply, stated that the bile when secreted exerts a pressure equivalent to 200 millimetres of water, and that, according to Heidenhain and other authors, the existence of secretory nerves in the liver is to be presumed.

Nov. 22nd.

RUSSIA.

(FROM OUR OWN CORRESPONDENT.)

The International Medical Congress: Changes in the Executive.

CONSIDERABLE changes have recently taken place in both the Organising and Executive Committees of the International Congress. The more important of these two bodies, the Organising Committee, has until now been under the presidency of Count Kapnist, the *popetchitel*, or director, of the Moscow Educational District (i.e., one of the twelve districts into which Russia is divided under the Ministry of Education). His retirement has necessitated the election of a new president of the Organising Committee of the Congress, and as his successor in the Education Department did not wish to accept the appointment the choice has fallen upon Professor Skliffosofski. Professor Skliffosofski for many years held the chair of Surgery in the University of Moscow and is now director of the Helena Clinical Institute in St. Petersberg. Professor Roth has been appointed chief secretary of the Organising Committee in place of Professor Erismann who has retired. The new vice-president of the Organising Committee is Professor Klein who remains as before president of the Executive Committee. The two new members of the latter, in place of Professor Erismann and Professor Ostroumoff, who have retired, are Professor Ognef and Professor Shervinski, who hold the chairs respectively of Histology with Embryology and of Special Pathology. Professor Nikiforof and Professor Krukof (Pathological Anatomy and Ophthalmology) have been elected as "candidates for members of committee."

A Local Committee for the Congress in Kazan.

Yet another local committee is in course of formation in connexion with the Congress. The organising committee has requested Professor Ghé, the Dean of the Faculty of Medicine in the University of Kazan, to undertake the election of such a body in Kazan. The object of the new committee will be to arrange facilities for foreign visitors to the Congress who wish to see for themselves the beauties of the River Volga and to visit some of the interesting towns along its banks. Of these at least two—Nijni Novgorod and Kazan—are easily accessible from Moscow.

Endemic and Epidemic Diseases in Russian Central Asia.

Recent reports from Russian Central Asia describe an unusually severe form of intermittent fever which has been literally raging in the Merv Oasis since the spring. The disease is endemic in that part of the world, but during the whole of the past summer it has been epidemic to an unprecedented extent. It is thought that an overflow in the spring of the River Murghab, which caused widespread inundations and was followed by a period of intense heat, may have led to the increased prevalence of malaria. Whatever the cause may have been the epidemic seems to have been one of the most fatal on record. According to some authorities between 15 and 20 per cent. of the population of the Oasis of Merv have been carried off by the disease, while in Merv itself those who have not had an attack of the fever may almost be counted on the fingers of one hand. *Apropos* of this epidemic an interesting paper was read last week before the Russian National Health Society by Dr. Minkévitch on the Diseases Prevailing Generally in Transcaspia (which includes the Merv Oasis). The reader of the paper mentioned the following as the diseases most frequently met with in their order of prevalence. 1. Intermittent fevers, with a specially dangerous hæmorrhagic form, which sometimes takes on an epidemic character, as has recently happened in Merv. Fortunately it is not quite universal; there are points free from it, especially where there are hills. It causes much trouble to the Russian garrison of the province, who have constantly to change their camps to escape it. 2. Gastro-intestinal disorders and dysentery, causing a high mortality among children. 3. Small-pox, which has much diminished since the introduction of vaccination. 4. Syphilis, said to have been brought into the province by the Persians, and to be spreading. 5. Typhus and typhoid fevers, measles, scarlet fever and diphtheria, none of which, fortunately, have become epidemic. 6 Leprosy, found only in one *aoul*, or settlement. 7. Eye diseases. 8. The Penjdeh sore, a purely local disease, but which has spread among the Russian troops in the province.

Peasant Credulity.

An almost incredible instance of the hideous results of ignorance and credulity is vouched for by an eye witness who writes to a Southern Russian paper. A peasant woman in the village of Slavyansk has a daughter aged ten years who recently suffered from some affliction of the eyes. She consulted a "wise woman" in the village, who gave her the following advice. She told her to procure some gunpowder, put it in the child's eyes, and apply a match to it. This advice the mother implicitly followed. The writer of the

letter states that he was passing the house at the time, heard the report, and went in to see the cause of it. He found the room full of smoke, and when this had cleared off the wretched child was seen lying in agony with two cavities where once had been eyes. The mother was also injured by the explosion.

Moscow, Nov. 14th (26th), 1896.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Egyptian Army: the Army Medical Department.

THE headquarter staff and the artillery of the Egyptian troops are now back again in Cairo, and a regiment has been sent to replace the Indian contingent at Suakin, but the bulk of the army, some 14,000 men, is still on field service stretching between Assuan and Merowi, the furthest frontier station to the south. The base hospital is still at Cairo with 200 beds, under the charge of Surgeon-Major Hunter, D.S.O., and to it all seriously sick and wounded men are eventually relegated. The following list of communicating hospitals, proceeding from north to south, will give some idea of the present disposition of the native troops. At Assuan there are 50 beds, at Korosko 20, and at Wady Halfa 100. Kosheh has 50, Abu Sari 20, Kedden 25, Abu Fatna 10, and Dongola 150, under the care of Surgeon-Captain Penton, D.S.O. South of Dongola there are 25 beds at Handak, 25 at Debbeh, 25 at Korti, and, lastly, 25 at Merowi, where Surgeon-Captain Whiston is in command. The Halfa and Dongola hospitals are full, but all the others are about half full, the sick-rate of the whole army being extraordinarily low—namely, under 3 per cent. In addition to all these military hospitals, some of the smallest of which are of a temporary nature and consist only of tents or matted huts, it is now proposed to build permanent civil hospitals at Dongola, Debbeh, and Merowi. Civil hospitals have always been found to answer well on the frontier and have a very civilising effect on the natives. Everyone is unanimous in praising the good work done by the English medical officers during the late expedition, and it is felt that the C.B. and the two Distinguished Service Orders given in the last Gazette were most richly deserved. It was impossible to decorate more than three out of the seven surviving medical men and the others will now doubtless receive Egyptian decorations, but no one who saw them will ever forget the strenuous exertions and uphill fight against the cholera and many other difficulties of the four surgeon-captains—Hill Smith at Akasheh, Spong at Kosheh, Whiston at Assuan, and Dunn at Assuan and Sarras.

Government School for Girls.

It is always a pleasure to record any success of the English in this country and this time it is a lady who deserves praise. The Education Department has long been aware that no thorough reform could be instituted among the natives while one sex only received instruction in cleanliness, hygiene, and morality. The women of Egypt are, with the one exception of a liberal knowledge of vice, little better than children themselves and are quite unfitted to keep their infants alive or to teach their young the rudiments of anything. To break down the barriers of the harem system will require at least a generation of time and an infinity of tact and patience. But education must precede the emancipation of the Oriental woman, and the sooner it is begun the better for the races which we are trying to improve. A year ago I inspected a school of fifty girls which had just been inaugurated and placed under the control of a Girton lady new to Egypt and to the Arabic language. The children were unkempt and dirty, with granular eyelids and lice in their hair, and of course perfectly ignorant of discipline. Now, twelve months later, the school has grown in numbers to seventy-five, and is so great a success that the Government is about to build a residential block for 100. The children at present live at home and spend only their days at school. They are clean, healthy, and happy looking, and each class wears its own bright pinafore. They vary in age from six to fourteen, most of them about eleven or twelve. They are mostly the daughters of Government clerks and artisans, but a few come from high Government employés, who like the Mussulman character of the school. Sheikhs teach the Koran, reading, writing, and other subjects in Arabic, while English and all feminine accomplishments are taught by the English headmistress and two Syrian assistants. The kindergarten system is in vogue, but wants a special teacher. Every day the girls are drilled for a quarter of an hour in English and Arabic, to their great delight, and it is wonderful to see how well disciplined they already are. A medical man calls at the school every morning and pays special attention to prevent ophthalmia, and the children drink water from Pasteur filters. The greatest punishment which can be inflicted upon a child is to send her to her home for three days. This is partly because the father is apt to exhibit his displeasure by means of a sound beating.

Prospects of the Tourist Season.

There has been no suspicion of cholera or of quarantine since the middle of October, but it is thought that it may take some little time to establish confidence in intending visitors from the United States. The hotels are all open and confidently expect a good season. The first winter races have been fixed for Dec. 16th and the usual Cairo gaieties have now begun.

Cairo, Nov. 24th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Medical Education in the United States.

SOME interesting facts in regard to medical education in this country may be gathered from the report of the Commissioner of Education for the year 1893–4. If we compare the number of students for 1883–4 with the number in 1893–4 we can form a very correct idea of the progress of medical education. In 1883–4 the number of regular schools of medicine was 88, in 1893–4 it was 109; homœopathic schools in 1883–4 13, in 1893–4 19; and eclectic, 9 in 1883–4, and 9 in 1893–4. Although there was a net increase during the decade in the number of medical schools, it should not be inferred that the permanent establishment of medical schools is easily accomplished, for we find that twelve schools that were in the list of 1883–4 are now defunct, while three others that launched their barks since that time were not able to continue their voyage. The students in 1883–4 numbered 10,600: in 1893–4 they numbered 17,601, an increase of 66 per cent. The eclectic students numbered about the same at the two periods—767 in 1883–4 and 803 in 1893–4, an increase of only 4·7 per cent. The number of regular medical students increased more than twice as fast as homœopathic students and more than fourteen times as fast as the eclectic.

No Homœopathy in the South.

It is noticeable that if we omit one or two border states there are no homœopathic students in the south and that the homœopathic schools are not keeping up even relatively with the general growth in the United States at large, so far as numbers are concerned, and that the eclectics are still further behind.

Women in Medical Schools.

Judging from the enrolment of women students, homœopathy and eclecticism seem to be more popular with them than with men; while there are nearly three times as many women students in the regular schools as there are in the homœopathic, the ratio to male students is much smaller. In the regular schools the number of women is 902, which is only 5·1 per cent. of the whole number; but in the homœopathic schools there are 351, or 21·1 per cent., of the whole number, while in the eclectic schools there are 86, or 10·7 per cent. In all the medical schools there are 1419 women, or 6·5 per cent. of the whole number. In dentistry, pharmacy, and law the number of women is much smaller; dentistry, 88, or 2·1 per cent.; pharmacy, 88, or 2·4 per cent.; and law, 54, or seven-tenths of 1 per cent.

Percentage of Students Graduating.

It is concluded that, on the whole, medical students at the present time are required to have a better preliminary training, are required to spend a longer time in the study of their profession, and must undergo severer final examinations than students in the other professions—law, theology, dentistry, and pharmacy. If we take these elements of preparation singly the result might be different. For instance, it might be claimed that law students begin the study of law with a better education than medical students; but when we

consider all three of the items mentioned it will be found that the result is probably as stated—namely, that medical students are required to make better preparation for their work than any other class of students.

Recent Additions to the Army Medical Museum.

The last Congress appropriated $5000 for the use of the Army Medical Museum at Washington. A portion has been used to purchase appliances employed by foreign countries for exhibition in the museum side by side with the improved equipments of the Hospital Corps of the United States army. The exhibition shows that the litters and general appliances of the European armies, excepting possibly England, are characterised by exceeding bulkiness and weight, though admirable in many other respects. The Prussian and Spanish mattresses, in particular, are remarkable for comfort and hygienic qualities. The Norwegian litter is an unwieldy affair and is very uncomfortable. The Japanese have a light and easy bamboo bed on wheels, with carriage top, resembling the jinrinksha; also leather-bound medical chests and French pouches and panniers, admirable for completeness of outfit and economy of space. Our new litter is much lighter than any other, except the Japanese, and is much more durable than that, as well as being better adapted to the use of our arms. The new operating-table for field hospital work seems as nearly perfect as possible. The new telephonic bullet-probe and forceps has been added and will be useful where probing of a wound is desirable.

Nov. 17th.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

THE most important subject dealt with by the General Medical Council at the session just closed—not excepting even the multiplication of examinations and the effects thereof—was the irregular registration of deaths upon certificates furnished by other than medical men. It is to be hoped that the President of the Local Government Board will fix an early date for receiving a deputation from the Council on the matter, and that after the deputation has had its say remedy will swiftly follow.

The faulty wording of the card issued by the Election Committee for the joint return of Dr. Glover, Dr. Woodcock, and Dr. Drage as Direct Representatives of the profession on the General Medical Council must have struck all who read it. None the less, Mr. Rivington was right to take exception to the publication of instructions to the electorate that he considered misleading and likely to "seriously affect other candidates, including himself."

We refer in a leading article to the excellent debate which took place on Monday upon the multiplicity of examinations. We are heartily glad that the matter remains before the Council by being referred back to the Examination Committee. There may be no hurry, but the topic is one that must not be indefinitely shelved.

Dr. Gowers may think that the thin end of the wedge of phonography has been driven into medical education by the motion of the Council, also on Monday, that "marks not exceeding 5 per cent. of the total marks obtainable in this section (English language) of the examination may be assigned to candidates who show a competent knowledge of shorthand." The edge is certainly very thin. But there it is, and it will at any rate suffice to show that the Council by so much agrees with the medical phonographers that a knowledge of shorthand is a very useful accomplishment for a medical man. Several members of the Council showed by their speech that the subject was to them a practical one.

Mr. Anderson's friends will not be much encouraged by the action of the Council in regard to his grievances. Dr. Glover found a seconder for his proposal to memorialise the Government on the subject, but Dr. Philipson and he were the only supporters of such a proposal. The idea that the Council could expend its funds over further litigation in Mr. Anderson's behalf was universally rejected as out of the region of practical politics.

The members of the Council on the last day of meeting were sorry to learn that Mr. W. J. C. Miller, the Clerk to the Council, had that morning been attacked with illness which must for the present at least impose absolute rest. We share the sympathy which was felt by the Council. Mr. Miller's illness is the more serious in that it occurs at the present moment, with all the business of the Council meeting to wind up and when the counting of votes and the declaration of the poll in the election of Direct Representatives is imminent. It is understood that the Executive Committee have made necessary arrangements.

Not the least pleasing incident of the meeting was the motion by Mr. Carter conveying the sentiments of the Council towards Mr. Wheelhouse and Sir Walter Foster in regard to their retirement. Nothing could have been more generous, and we presume more gratifying, to the retiring members. It is curious to notice the difference in the expressions of the Council as between the abstract principle of Direct Representation and the respect for individual Direct Representatives. The principle they are believed to dislike, but no words could have been more complimentary than those employed to acknowledge the uses of the retiring members in the Council. It will be difficult for the Council henceforth to refuse to believe that the system of Direct Representation may avail to supply an element in the composition of the Council not likely to be supplied in any other way. We most heartily congratulate Mr. Wheelhouse and Sir Walter Foster on the testimony that has been rendered to their services during the last ten years.

THURSDAY, NOV. 26TH.

Our report of last week carried the proceedings of the Council as far as the decision arrived at on Thursday, Nov. 26th, to refuse the application of the Apothecaries' Hall of Dublin for examiners in medicine and surgery, and at that point we now resume.

The Case of Dr. James Adamson.

The Council considered the case of James Adamson of Hetton-le-Hole, in the county of Durham, registered in England on June 18th, 1869, as Lic. R. Coll. Surg. Edin., 1869, M.D. Univ. Glasg., 1869, who was summoned to answer the following charge as formulated by the Council's solicitor: "That, being a registered medical practitioner, he authorised, permitted, and enabled an unqualified person, under cover of his name and qualifications, to carry on medical practice as though he were duly qualified, and to perform the duties and exercise the functions which by law were confined to qualified and registered medical practitioners. The names of the complainants are William Andrew Hewitson and Allison Albany Davies Parker, of Park Villa, Hetton-le-Hole, county Durham. The name of the unqualified person referred to is Moody M. Birch."

Dr. Adamson attended along with his solicitor, Mr. Deans, and with Mr. Bucknill, Q.C., M.P., as his counsel. The complainants did not appear and the charge rested therefore on written statements forwarded by them.

Mr. BUCKNILL said that although he might in the circumstances ask that the case should be struck out that was not the course he would take. Dr. Adamson had placed himself in his hands and he desired him to say that he did not blink the fact of his having been to a certain extent blameworthy in the matter as he saw it that day. He deeply regretted irregularities so far as they had been brought to his notice, he had discharged Mr. Birch, and he would never again employ an unqualified assistant. He did not wish to go without rebuke for what had occurred.

Dr. ADAMSON having answered questions put to him by members the Council considered the completed case in private. On the parties being recalled,

The PRESIDENT informed Dr. Adamson that the Council had deliberated on his case with great patience, and they had come to the conclusion that the charge made against him had been proved to their satisfaction. But they felt that much of his action was due to inadvertence; he had apologised fully for what had occurred, and he had given the Council an assurance that the like offence would not be repeated. Under these circumstances the Council had resolved to proceed no further with the case.

Dr. ADAMSON said he would give a guarantee that he would do nothing to infringe the letter or spirit of the Medical Act, and he would not employ an unqualified assistant even as a dispenser.

The Council proceeded with, and partly heard, a charge of "covering" against Mr. John Spencer, which is reported as part of Friday's proceedings.

The Council adjourned.

FRIDAY, NOV. 27TH.

The Council met again to day, Sir RICHARD QUAIN presiding.

Unqualified Assistants in Wales.

The Council proceeded to the consideration of the case of Rees Thomas Edward Davies of New Tredegar, near Cardiff, registered in England May 22nd, 1880, as Mem. R. Coll. Surg. Eng., 1879; Lic. R. Coll. Phy. Edin., 1880; Lic. Soc. Apoth. Lond., 1880, who had been summoned to answer the following charge, as formulated by the Council's solicitor, viz.:—"That he systematically authorised, permitted, and enabled unqualified persons, under cover of his name and qualifications, to administer medical treatment to patients, and generally carry on medical practice and perform the duties which can properly be performed only by practitioners recognised by law."

The names of the unqualified persons referred to were Mr. Jones and Mr. Evans, and the complainant was Mr. Francis Ignatius Maunsell, of Tir Phil House, Tir Phil, Cardiff.

Both Mr. Davies and Mr. Maunsell attended and were questioned at considerable length by members of the Council. The former stated that it was the common practice of medical men in the Welsh colliery districts to employ unqualified assistants, who in many respects were more adapted to the work than the qualified men whose services they were likely to obtain. On account of the rough conditions of the work and the want of society they could never get a qualified man to stay any length of time, while it was a rare thing to find one who could speak the Welsh language. In his own case he worked under a committee whose wishes he had to respect, and it was the wish of this committee that unqualified assistants should be employed by him. Within three miles of his place, Mr. Davies said, there were three medical men, all of whom have unqualified assistants. Since this complaint had been made against him he had received a copy of the regulations of this Council on the subject of employing unqualified assistants, but that was the first time they had come under his observation. In reply to questions by the President Mr. Davies said he believed that the Colliery Committee, under whom he worked, would submit to any decision arrived at by the General Medical Council. He and Mr. Maunsell lived 100 yards apart, but there was a river between them.

The PRESIDENT announced after the usual deliberation on the case in private that the Council had come to the decision that the charge against Mr. Davies was proved. There were two courses open to the Council—one to proceed to carry out their decision to the extreme and the other to postpone sentence until the meeting in May. The latter course would be taken on condition of Mr. Davies carrying out the wish of the Council that he should not employ unqualified assistants. If Mr. Davies did continue to employ unqualified assistants he might depend upon it that his name would be removed from the Medical Register, and therefore he must make it clear to the people who employed him that they would lose his services if the wish of the Council was not respected. The Council wished it generally understood among these colliery districts that they were decidedly of opinion that unqualified assistants should not be employed in the practice of medicine, surgery, and midwifery.

Mr. DAVIES: May I retain these two men as dispensers?

The PRESIDENT: You must get rid of unqualified assistants.

The Case of Mr. John Spencer.

Consideration was also given to the case of John Spencer of Market-street, Hetton, Fence Houses, in the county of Durham, registered in England March 27th, 1888, as Lic. R. Coll. Phys. Edin., 1887; Lic. R. Coll. Surg. Edin., 1887; Lic. Fac. Phys. Surg. Glasg., 1887, who was summoned to answer the following charge as formulated by the Council's solicitor: "That he had systematically authorised, permitted, and enabled unqualified persons, under cover of his name and qualifications, to administer medical treatment to patients and sign death certificates and generally carry on medical practice as though they were duly qualified. The unqualified persons referred to were Mr. G Cumming, formerly associated with him, and Mr. John Flockton, now associated with him in practice. The complainants were Mr. William Andrew Hewitson and Allison Albany Davies Parker of Hetton-le-Hole, county Durham."

Mr. Spencer attended and was represented by Mr. Bruce Williamson as counsel. The complainants did not appear. The documents in the case having been read,

Mr. BRUCE WILLIAMSON said that Mr. Spencer's desire was to put himself absolutely in the hands of the Council. If he had acted in a manner of which the Council did not approve he deeply regretted it, and if he had been wrong whatever the motive might have been it would be an advantage to him that the matter had been brought before the Council and that he knew the Council's opinion respecting it.

Mr. SPENCER, in answer to Mr. MUIR MACKENZIE, stated that Mr. Flockton attended confinements on his own responsibility, with his (Mr. Spencer's) knowledge, and with his knowledge that Mr. Flockton was unqualified. He did not allow Mr. Cumming to do the same thing. He always went with Mr. Cumming, who stayed with him to look on. Replying to members of the Council Mr. Spencer said that Mr. Flockton attended only a very few simple cases of confinement on his own responsibility. Mr. Flockton did not always send for him when a case arose, but Mr. Cumming always did. When he (Mr. Spencer) was absent from home on holidays, from July 15th till about Aug. 15th, Mr. Cumming had issued eight or more death certificates. Mr. Cumming had given certificates in cases he did not attend. These certificates were not on the usual form.

Mr. BRYANT: But they were accepted as certificates of death by the registrar.

Mr. SPENCER said they were given for the convenience of the people rather than of the Registrar. They were given in order to enable the people to get their club money. Occasionally the poor of the district would call Mr. Flockton "doctor." He was not aware that any of Mr. Cummings' so-called certificates were supplemented by the medical man who had charge of the practice while he (Mr. Spencer) was on holiday.

Mr. BRUCE WILLIAMSON was further heard in Mr. Spencer's defence. He mentioned that he had gone through the Registration Act and he could not discover that there was any enactment which expressly said that such notification of deaths as Mr. Cumming had given was not to be given. If Mr. Spencer had asked council's advice he should certainly have said that the thing ought not to go on, and he knew that no one regretted more than Mr. Spencer did that it had been allowed to go on. Some indulgence ought to be allowed his client seeing that the law was not quite clear and that the practice had been allowed to prevail extensively in the district. The local registers were inspected every month by a Government official, and although these "notes" were shown to the official exception had never been taken to the registrars acting upon information of the kind. He did not suggest that Mr. Spencer should be altogether exonerated, but he put it to the Council that he had not acted wilfully.

After consideration of the completed case in private,

The PRESIDENT, addressing Mr. Spencer, said that the Council had fully deliberated on his case, and they had come to the conclusion that the charge made against him had been proved to their satisfaction. But they believed that his conduct had resulted from inadvertance, and as he had apologised fully for what had occurred, and would give an assurance [Mr. Spencer: "I give a positive assurance."] that the like would not occur again, the Council were resolved not to proceed further with the case.

Death Certification—Prospects of Legislation.

Mr. TEALE thought the Council ought to give forth a very distinct pronouncement with reference to the loose system of notification of death that had been brought under their notice in the Durham cases. He therefore moved that the attention of the Registrar-General should be called to a declaration of Mr. Joseph Elliott, registrar of deaths at Hetton-le-Hole, made at South Hetton on Nov. 21st, and that the list of deaths and certificates circulated as part of the documents in the Durham cases should be forwarded to the Registrar-General, the Council pointing out particularly that the district registrar received "notes or information" informing him of the fact of death, and entered the same in the register without requiring a certificate of the cause of death signed by a registered qualified practitioner. In supporting this proposal he said he was told, and members of the Council would tell them, that the registrar had been acting strictly within the law. That might be so, but he did not think it was at all clearly understood. For his part he thought it a very, very serious infringement of the spirit of the law, whether they looked at that as being for the protection of the public against crime or to enable the Registrar-General's reports of the deaths of the country to be accurate, and the pronouncement which he asked the Council's consent to, if it did not have the immediate effect of securing an alteration of the law, would at least add to the evidence that would lead to the change which was desirable.

Dr. MACALISTER, who considered it was quite possible that the law admitted of the practice complained of, was sure the Registrar-General would be only too glad to have his hands strengthened by a finding of the General Medical Council. He seconded the proposal.

Mr. BRUDENELL CARTER concurred with Dr. Macalister that the Registrar-General would welcome action in this matter on the part of the General Medical Council; much was done by his department to secure accurate information as to the cause of death. This was shown in the recently issued decennial report, where it was stated that 2000 letters had been written with the view of having doubts removed in cases in which it was considered the certificate was ambiguous.

Dr. BRUCE supported the proposal. The practice in existence was a dangerous one and he should like to see it stopped. These notes or information, however, were used for a purpose and to that also attention should be called. He should like to have words added to the proposal to the effect that it had been given in evidence before the Council that the "notes or information" in question were used in extracts granted to club officials in order that members of clubs might obtain their club money.

Dr. HECTOR CAMERON was in favour of having such words added to the motion.

Sir WALTER FOSTER wished to say that if every member of the Council would take the trouble to read the blue-book of evidence and the report of the Select Committee of the House of Commons on Death Certification, which sat some sessions ago and over which he presided, they would obtain a good deal of information that would strengthen the feeling for the proposal now before the Council. In calling attention to the matter involved the Council would strengthen the Legislature in pressing for a new Act relating to the registration of births, deaths, and marriages. A Bill on the subject had already been drawn up and at the present time was in the pigeon-holes at the offices of the Local Government Board. It had not been introduced into the House of Commons, but he hoped it would be next session. A resolution by the General Medical Council would encourage Parliament to secure better legislation than that which at present existed, for no doubt there were great facilities afforded for the concealment of crime by the loose methods in which deaths were registered. As a matter of fact there was no surety that a person buried was the person named in a certificate. The matter which had given rise to the proposal under consideration was one of the greatest flaws in the law. The Registration Act did not require that a death should be certified by a medical man, and any death of which the registrar obtained information which was not certified by a medical man was entered in the register as an uncertified death. Notifications of death which were not certified by qualified practitioners had been put amongst the uncertified deaths, and consequently had been lost for statistical purposes. They had not given rise to error in the statistics, but they had been lost, and consequently the general statistics had been rendered less valuable than they otherwise would have been. What they wanted to do was to secure the public against serious dangers and to place before the public more accurate information, in order that the vital statistics of the country might be even more worthy than they were. He was glad that Dr. Bruce had called attention to the registrars' extracts for club purposes. The fact was that certificates were very often wanted by clubs and other societies, and if a patient had died without having been attended by a legally qualified man some other person was called upon for the purpose of meeting the wants of these clubs, and the registrar was able to give extracts of the cause of death from the information in his possession. Such certificates were no doubt more acceptable to the clubs and societies than the information of any outside persons. It was obvious that there was opening for abuse of the registration system. He urged, in conclusion, that in calling attention to a very grave flaw in the present state of the law and showing a grave piece of malpractice in the carrying out of the Registration Act the Council would be doing their duty, and urging the better legislation required in the interests of scientific purposes, the protection of the public, and the prevention of crime.

Sir WILLIAM TURNER asked if a registrar was bound to give an extract if a person came to him asking for one.

Sir WALTER FOSTER said that a registrar was bound to give an extract and could charge a small fee for it. A registrar, he thought, was not bound to give an extract of the cause of death unless that was certified by a practitioner. Where there was no such certification all a registrar could give was an extract as to the bare fact of death. He had to give a copy of his own register, and the presumption was that because of that he might have a double register, one part in which to keep cases of uncertified deaths and the other for cases in which the cause of death was certified by a regularly qualified man.

After further discussion the resolution was amended and adopted in the following form:—

"That the attention of the Registrar-General be called to the declaration of Joseph Elliott, registrar of deaths at Hetton-le-Hole, in the county of Durham, made at South Hetton on the 21st day of November, 1896, and that the list of deaths and certificates on pages —— of a paper entitled 'Documents and Evidence' be also forwarded to the Registrar-General. The Council especially point out that the District Registrar receives from unqualified persons 'notes or information' informing him of the fact and cause of death, and completes the registration in respect of the cause of death in the register without requiring a certificate of the cause of death signed by a registered medical practitioner. The Council is also informed that this 'information' is used in extracts granted to club officials in order that members of those clubs may obtain their club money."

Dr. GLOVER moved: "That the President of the Local Government Board be requested to favour the Council by receiving a deputation of its members on this subject." He pointed out that as the Registrar-General was not to blame for his sub-registrars, who were only carrying out the law, what they should try to get was an alteration of the law, and his opinion was that they could best press that by deputation. The Registrar-General was a subordinate of the Local Government Board.

Sir WALTER FOSTER: Excuse me. That is a thing that we have never been able to settle.

Dr. GLOVER: Then I shall substitute the Registrar-General, but I think the proper Government department responsible is the Local Government Board.

The PRESIDENT: No.

Dr. GLOVER: Very well. I will substitute the Registrar-General.

The PRESIDENT: Had you not better wait until we get an answer repecting the resolution?

Dr. THORNE THORNE: I believe that the President of the Local Government Board is the minister through whose hands all the work of the Registrar-General passes.

Sir WALTER FOSTER said it was a difficult position. The Registrar-General was appointed by the Crown and he had a separate vote for the office. Technically he was practically out of the control of the Local Government Board, but anything affecting his department in Parliament was taken in hand by one of the officials of the Local Government Board. If the Council agreed upon a deputation it should go to the Local Government Board rather than the Registrar-General, because the former were the Parliamentary representatives.

Dr. GLOVER indicated that he would let his proposal stand as he moved it.

Sir DYCE DUCKWORTH seconded the motion. He remarked

that from the Council's previous experience of addressing letters he did not think they could expect much from following the same course in this instance. He thought that if a deputation were received something would actually be accomplished.

The motion was then agreed to.

Cancelling a Qualification.

Mr. BRYANT moved that the following communication to the Registrar be received and entered on the minutes:—

"Royal College of Surgeons of England, Lincoln's Inn Fields,
"London, W.C., Nov. 13th, 1896.

"SIR,—In pursuance of the 23th Section of the Medical Act of 1858 I am directed to communicate to you, for the information of the General Medical Council, the following resolution adopted by the Council of this College on the 12th inst., in reference to Mr. W. R. N. Maloney, lately residing at 101, Duncairn-street, Antrim-road, Belfast, and now of 3, Coates-place, Edinburgh, viz.—

"'That Mr. William Robert Nuttall Maloney, admitted a Member of the College on the 18th of January, 1886, be hereby removed from being a Member of the College, inasmuch as he has failed to make the Statutory Declaration required by the Council, and now admits responsibility for the actions attributed to him, and as he has further aggravated his offence by continuing to issue advertisements and adopt modes of practice held by this Council to be disgraceful in a professional respect.'—I am, Sir, yours faithfully,

"EDWARD TRIMMER, Secretary."

In explanation of this letter, Mr. Bryant said that the attention of the Royal College of Surgeons of England had been drawn to Mr. Maloney's case by a correspondent in India, for it seemed that Mr. Maloney had left Melbourne for India. The information was that Mr. Maloney had associated himself with an electrician. He had hired a theatre and covered columns of newspapers with advertisements of the performances. The College had appealed to him about this, and his explanation was that the advertisements referred to were issued by a gentleman with whom he was associated and they were issued against his will. The authorities of the College looked at these advertisements and saw that they contained a copy of his diplomas and the signatures to these diplomas, and it was clear that they could not have got into other hands without Mr. Maloney's knowledge. He had, therefore, been written to and asked not to continue these advertisements. Before the College could receive an answer they received some letters from Belfast, and to their surprise they found that the same gentleman was in Belfast and was "starring it" there, presumably under the same tutelage, although the name of the proprietor of the show did not appear. It was perfectly clear to them that he was systematically following a course that they could not tolerate as being pursued by one of their members, and, therefore, in the second week of November his name was taken off the Royal College of Surgeons' roll. Mr. Maloney was also a Member of the Apothecaries' Society of London, and he had, he believed, been "starring it" in Edinburgh in the same high way as in Belfast.

Sir WILLIAM TURNER said that this person was on the Medical Register with two qualifications, one that of the Apothecaries' Society, dated 1885, and the other that of the Royal College of Surgeons of England, dated 1886. He stated in his advertisements that he was also an M.D., but he was not registered as an M.D. During the last few weeks the people of Edinburgh had practically had a personal acquaintance with Mr. Maloney, for he had occupied the whole of one side of their newspapers with his advertisements, greatly to the diminution of the news. He advertised meetings in the Music Hall. He (Sir W. Turner) dared say it was no information to the Council that there was a considerable number of medical students in Edinburgh, and when the advertisements in question appeared these students seemed to feel that Mr. Maloney was insulting the profession of which they hoped to become members. At any rate they went to the Music Hall, and he believed—he did not go himself—that they gave Mr. Maloney extremely warm greetings. These greetings were warm but not pleasant. The man had undoubtedly carried out similar practices in Melbourne and Belfast, and this showed that he systematically followed out the line of life referred to. He (Sir W. Turner) should say that the Royal College of Surgeons of England was entirely justified in removing his name from their list. It was for this Council to say whether they would take the surgeon's qualification off the Medical Register without inquiry.

Mr. MUIR MACKENZIE gave the opinion that it was both within the power and the statutory duty of the Council to take the qualification off at once. A man's name should not in any circumstances be taken off without inquiry. But the statute was perfectly clear on the point that if a qualifiying body removed a qualification the Council had the power to remove the qualification from the Register. In answer to a question he added that if the Apothecaries' Society removed the name from their roll the Council could not even then without inquiry remove the name from the Register, though they might remove the qualification. In every case the Council must have inquiry before the name was struck off.

Mr. Bryant's motion was then agreed to. It was further agreed that the qualification of the Royal College of Surgeons of England should be taken off the Register, and that the case be referred to the Penal Cases Committee for consideration.

The Election of Direct Representatives.

Sir WILLIAM TURNER, interrupting the consideration of a report from the Executive Committee on application for restoration to the Register, said that an important question bearing on the election of direct representatives had arisen during the afternoon, and it had occurred to the chairman of the Business Committee that it should form the first business at the Saturday sitting. The Business Committee had taken the advice of Mr. Muir Mackenzie on the matter, and they were advised that it must be brought before the Council. The Committee proposed to put the matter on the programme in this form:—"The Registrar to submit to the Council (1) the following communication addressed to him by a candidate for the place of direct representative, complaining that (2) the appended card had been officially circulated, calculated to mislead voters in giving their vote."

A demand was made that the letter should be read. It and the card were as follows:—

"96, Wimpole-street, W.
"November 27, 1896.

"*To the Registrar of the General Medical Council.*

"DEAR SIR,—I beg to call your attention, and through you the attention of the General Medical Council, to the issue of the enclosed card to the electors, signed by Mr. Victor Horsley, Chairman of the Election Committee of Dr. J. G. Glover, Dr. Samuel Woodcock, and Dr. Lovell Drage.

"It will be seen that this card, which has been sent out very widely, states that plumping is not permitted. This statement is directly contrary to the fact, since plumping, which consists in giving one vote to one Candidate only when more than one Candidate can be voted for, is permitted. It is cumulative voting which is not permitted. I beg, therefore, in justice to the other candidates (including myself), whose candidature is liable to be seriously affected by such an unauthorised and misleading statement from Mr. Victor Horsley, to enter a protest against it. It will be obvious that it is calculated to mislead a large number of electors, to damage especially those candidates who are standing on their own merits and not running in triplets, and might influence the issue of the election.

"If the voting papers had not been partly sent out already I should have suggested that the statement should be authoratively contradicted. As it is I must leave the matter entirely in the hands of the Council, only adding that if voters are induced by this misleading postcard to vote differently from their own wishes the election will be to that extent invalidated, and will be liable to be challenged by any candidate who may find that his interests have suffered by this undue influence.

"Requesting you to bring this matter before the Council,
"I am, dear Sir, yours faithfully,
"WALTER RIVINGTON."

[COPY OF CARD REFERRED TO.]

GENERAL MEDICAL COUNCIL.

ELECTION OF DIRECT REPRESENTATIVES.

Your Votes and Interest are earnestly requested on behalf of
Dr. J. G. GLOVER,
Dr. SAMUEL WOODCOCK, J.P.,
AND
Dr. LOVELL DRAGE.

ONE VOTE SHOULD BE GIVEN TO EACH OF THESE CANDIDATES RESPECTIVELY. PLUMPING IS NOT PERMITTED.

VICTOR HORSLEY,
Chairman of Election Committee of above Candidates.

November, 1896.

Dr. MCVAIL wanted to know what this had to do with the Council. If candidates or others broke the law the Council had nothing to do with that any more than Parliament had to do with infringement of the election law by candidates for the House of Commons.

SIR WILLIAM TURNER said that he was not pressing it on the Council as a communication made to the Council. He was asking the Council's directions as to what should be done about it.

Dr. MCVAIL: Nothing.

Mr. WHEELHOUSE said the Business Committee were advised by Mr. Muir Mackenzie that it must come before the Council as it might invalidate the election.

Mr. BRYANT remarked that the question involved was

whether a man might give one, two, or three votes to one candidate. Now the voter was not to put figures on the paper at all. He must put his initials against the names of the candidates he voted for, and if he voted for only one man he could not put three sets of initials against that one man's name.

Mr. BRUDENELL CARTER regarded it as being the business of the Council to protect the practitioners of the country from being misled by an inaccurate statement. Everyone would see that it was perfectly within the right of any man to vote for one candidate only and waste his other two votes. That was the course that voters were told in this card was not permitted, and he thought it was the bounden duty of this Council to prevent inaccurate statements of that character going abroad.

Dr. MACALISTER: This is a little more than a mere statement by a candidate. As it bears the name of a member of the Council it concerns the Council. I move that it go on the programme.

This proposal was agreed to and the Council adjourned.

SATURDAY, NOV. 28TH.

The Council resumed work to-day, Sir RICHARD QUAIN presiding.

The Election of Direct Representatives.

The first item on the programme of business was Mr. Rivington's letter.

The PRESIDENT announced that he had received a communication from Mr. Victor Horsley asking the Council to grant him a hearing, and said he wished to know what was the opinion of the Council on this subject.

Dr. GLOVER said he wished to be informed as to the legality of their proceedings. He would like to know whether they were acting under the authority of their legal advisers.

Mr. WHEELHOUSE said it struck him very forcibly that it was a matter with which the Council had nothing whatever to do. There was an election going on and all election efforts were made to promote the candidature of one person or another. The House of Commons never took any notice of this sort of squabble at parliamentary elections and he humbly proposed that the Council take no notice of the matter.

Dr. GLOVER said that if the view now expressed by Mr. Wheelhouse was correct he should like to know by what authority he and his colleagues on the Business Committee introduced the subject.

Mr. WHEELHOUSE explained that the matter was put into the hands of Mr. Muir Mackenzie who said it ought to be brought before the Council. The view he (Mr. Wheelhouse) had just expressed was his own personal opinion.

Mr. BRUDENELL CARTER pointed out that they not only had the opinion of Mr. Muir Mackenzie but they had the express direction of the Council itself that the business should be placed on this day's programme.

Mr. MUIR MACKENZIE said that the letter was put into his hands last night, and he was asked whether it ought to be withdrawn from the consideration of the Council, or whether it would be a proper subject to place upon the minutes. In his opinion, having regard to the fact that the letter complained of was a card on which the name of one of the members of the Council was printed as part of the card, and also that it called attention to an intended irregularity by members of this Council, it appeared to him a matter which should be brought before the Council.

Mr. WHEELHOUSE moved that the Council do not enter upon this business at all, and Dr. HERON WATSON seconded the motion.

Dr. GLOVER said that the Council must allow him to say something on this subject because Mr. Muir Mackenzie had thrown a great onus upon him. The Business Committee had introduced this subject and placed Mr. Rivington's letter on the programme, and if there was to be no reply from Mr. Victor Horsley he thought they would be putting that gentleman in a very unfair position, and if they were to vote now they put him (Dr. Glover) in a similar position, for he had a statement to make. The matter could not rest here. He himself was never consulted about the card. There were one or two things that he should have been more careful about than the authors of the card. But he was quite prepared to take the responsibility of the card and to defend it. To hear one side and to put Mr. Rivington's letter upon the programme, to introduce this without any notice, was one of the most irregular proceedings in the history of this Council.

Sir WILLIAM TURNER said he could not let that observation pass without notice. He was entirely at one with Mr. Wheelhouse in thinking that this matter should not have come up. It was a personal difficulty between certain of the candidates, and really they must settle it themselves; but Dr. Glover had charged the Business Committee and the Council with having broken the rules of the Council and having introduced a practice which he held to be very reprehensible. That was not the case. This matter came up and had to be considered. A gentleman of high standing in the profession wrote a letter asking the opinion of the Council upon a certain question, and obviously if that letter was to be considered at all it must be considered without delay. The matter was not gone into hastily. The President had had it under consideration, and so had Mr. Muir Mackenzie, and then it came down to the Business Committee with the wish expressed that it should go on to the programme. The Business Committee might have put it on the programme without giving any notice whatsoever, but they took the course of asking the Council to guide them, and the Council enjoined them to put it on the programme, and actually fixed the place it should have on the programme. He did not think, therefore, that any blame could be attached to the business committee.

Dr. MACALISTER said that as a direct charge had been placed upon the programme some answer to it should be permitted. They must retain the charge upon their minutes, and it would appear as though it were admitted if there were no answer.

Sir WILLIAM TURNER said there was no necessity for it appearing on the minutes if the Council decided it should not appear.

Mr. VICTOR HORSLEY, who was present in the public gallery, asked at this stage to be allowed to make a remark, but the President said he could not be permitted to speak without the sanction of the Council.

Mr. BRUDENELL CARTER said that in his view the gravamen of the whole business lay in the last part of the letter where it was said that the election would be liable to be challenged by any candidate who might find his interests had suffered by this card. He did not know what procedure there was for challenging an election to this Council, and he should be very glad to hear the opinion of Mr. Muir Mackenzie on the point whether, assuming it could be shown that some elector had been dissuaded from voting by this card, the result of the election could be disputed. If the validity of the election could not be challenged in this way he did not see that the Council should go into the matter.

Dr. ANGUS FRASER moved and carried the motion "That the Council sit in private to hear the opinion of Mr. Muir Mackenzie."

When the public were re-admitted to the hall

The PRESIDENT announced that the Council had very fully debated the question of hearing Mr. Victor Horsley and the following motion had been put into his hands:—Moved by Mr. Wheelhouse and seconded by Dr. Heron Watson, "That the Council do proceed to the next business on the programme."

Dr. MACALISTER, seconded by Mr. BRUDENELL CARTER thereupon moved "That Mr. Rivington be informed that the Council are not able to take any steps in the matter of his complaint, but must leave him to correct the erroneous statement he complains of in such manner as he sees fit."

Mr. WHEELHOUSE said he was quite willing to accept this motion.

Dr. GLOVER said he could not accept the word "erroneous," although he had no objection to "imperfect." He was prepared to admit that it was an imperfect definition of plumping, but so far as it went, it was absolutely accurate, and was in accordance with this Council's own regulations for the election. The question of plumping had been frequently raised in connexion with these elections and opinion taken upon it. He would read the opinion. "Question: Will plumping pure and simple—that is one voter giving all his three voters to one candidate be legal: Answer: No. Question: May he give one vote to one man and withhold the other two altogether? Answer: Yes." The fault of the card was that it had contemplated one form of plumping and not the other. That undoubtedly was an imperfection.

The motion was then altered to this form: "That Mr. Rivington be informed that the Council can take no action in the matter of his complaint, but must leave it to candidates

to correct the erroneous impression which may have been made by the document referred to"; and in this form it was adopted by the Council, instructions being given to send a copy to Mr. Victor Horsley. As to the minutes, it was decided that both Mr. Rivington's letter and Mr. Victor Horsley's application should go upon them.

Restorations to the Register.

The Council then sat *in camerâ* to consider a report by the Executive Committee in regard to seven petitions for restoration to the Medical Register. The Executive Committee recommended restoration in only two cases—those of Mr. George Davidson, M.B., C.M., University of Glasgow, and Mr. Neville Holland, and in each case the Council adopted the recommendation and directed the name to be restored.

Thereafter the Council adjourned.

MONDAY, NOV. 30TH.

The Council met again to-day, Sir RICHARD QUAIN in the chair.

Finance.

Mr. BRYANT brought up two reports from the Finance Committee, one on the purchase of the premises in Oxford-street and the other on the assessment of the Irish Branch Council. The former stated that the cost of the acquisition of the property might be put down at £18,153 and of the new council room at £4276, making a total of £22,429. With regard to the assessment of the Irish Branch Council the committee pointed out that the principle of the assessment was not determined by the General Medical Council, but by Section 13 of the Medical Act of 1858, which provided that the expenses of the General Medical Council, including those of keeping, printing, and publishing the Register for the United Kingdom, should be defrayed by means of an equal percentage-rate upon all moneys received by the several branch councils, and the necessary percentage having been computed by the General Medical Council the respective contributions should be paid by the treasurers of the branch councils. This principle had been strictly observed. Mr. Bryant expressed regret that the income of the Irish Branch Council should be comparatively small and that it should have little funds to fall back upon, but he hardly saw how the system of assessment could be altered. Sir Philip Smyly informed the Council that the whole of the charge for the past year had been taken out of the reserve fund of the branch council.

Recognition of Shorthand in Examinations.

Dr. BATTY TUKE, on behalf of the Education Committee, submitted a report on the recognition of shorthand as a subject in the preliminary examinations. The committee said that while they were prepared to admit that skill in shorthand might be a convenient accomplishment for students of medicine, as for other students, they believed its advantages were liable to be exaggerated. It appeared to the committee that if shorthand was to be recognised at all it would be best to regard it as a special kind of handwriting. The examining bodies might be empowered to assign to the subject marks not exceeding 5 per cent. of the total marks obtainable in the section of the preliminary examination dealing with English. This might conveniently be done by means of a note appended to the regulations as they now stood. In order that the Council might decide first as to the principle involved, and secondly as to the mode of carrying it out, the committee recommended that the following motions be placed on the agenda of the present meeting:—

"(*a*) That it is desirable that credit should be given to candidates who show a competent knowledge of shorthand in the preliminary examinations in general education.

"(*b*) That the following note be appended to the Regulations under the heading 'English Language, including Grammar and Composition':—'Marks not exceeding 5 per cent. of the total marks obtainable in this section of the examination may be assigned to candidates who show a competent knowledge of shorthand.'"

Dr. Tuke concluded by moving the adoption of the first recommendation.

Dr. MACALISTER, who spoke as a practical shorthand writer, objected to any subject more important than shorthand being displaced. He was quite prepared, however, to support the proposal made by the Education Committee, that it was desirable that some credit should be given so long as it was made clear firstly that no examining body was compelled by this Council to adopt shorthand as one of the qualifying subjects; and secondly, that the credit given to shorthand was not to be such as would swamp or thwart any other branch of study.

Dr. PETTIGREW said that he had found shorthand a most excellent adjunct for many purposes, but he gravely questioned the wisdom of employing it for taking down lectures.

Mr. THOMSON was sorry to find Dr. MacAlister and Dr. Pettigrew putting the matter forward in such a way that he was afraid it would prejudice the Council against the acceptance of the report of the committee. The suggestion of the committee that shorthand should be attached to the subject of English was in his opinion an excellent one, and the only improvement he had to put forward was that the margin of marks should be somewhat enlarged.

Dr. HERON WATSON said he supposed the next proposal would be that all the written examinations should be done in shorthand and the examiners should have to go to school again to learn it.

Mr. BRUDENELL CARTER said there could be no doubt as to the value of shorthand to the medical student; but it must be used in moderation, and to him it appeared highly important that the marks given to shorthand should not be sufficiently numerous to compensate in any marked degree for inferiority in any other subjects. On this ground he was prepared to support the recommendation of the committee.

Dr. BATTY TUKE moved the adoption of the second recommendation, and was seconded by Mr. WHEELHOUSE.

Sir DYCE DUCKWORTH, speaking as one of the supporters of the memorial on the recognition of shorthand, said he felt sure that those who had been taking action in the matter would be satisfied with to-day's debate and with the value which the Council was now asked to award to knowledge of this subject.

The second recommendation was then put to the Council and adopted.

The Increase of Examinations and Rejections.

Sir DYCE DUCKWORTH read to the Council the report by the Examination Committee on the motion of Mr. Teale and Dr. Pettigrew remitted to it in June last to this effect:—

"That the present system of accumulated examinations and the enormous increase in the number of rejections resulting from it are not only unjust to the student, but damaging to medical education; therefore—

"That the time has arrived when the General Medical Council should consider (*a*) how far examinations and occasions of rejection can be reduced in number; (*b*) how far, whilst maintaining effective examinations in those subjects which it is essential that every medical man should 'know' and 'retain the knowledge of,' it is possible to withdraw from the sphere of public examination several other subjects which it is desirable that every medical man should 'know about,' but with the details of which he need not permanently burden his mind, the 'bird's-eye view' of such subjects being ensured by compulsory short courses of lectures, with class examination certified by the teacher."

The committee's report was as follows:—

The Examination Committee has had under its consideration the above resolution and begs to report upon it as follows:—The Committee takes note of the fact that with what has been regarded by the General Medical Council as an advance in medical education and an improvement in the system of examining for qualifying degrees and diplomas, there has been a steady increase in the number of rejections of candidates at the several boards. The Council has occupied much time and taken great pains in arranging the curricula of students from the outset to the conclusion of their work and six years ago carried the important recommendation of a fifth year of study to enable them to secure a more practical knowledge of the main objects of their studies. By a system of minute inspection extending over three years the General Medical Council has satisfied itself of the generally excellent character of the examination tests applied by the several universities and the great majority of the corporations in the three kingdoms and where any defects existed it has specifically drawn the attention of the bodies reported on to them.

The Examination Committee is of opinion that the system now loyally carried out by all the examining bodies in connexion with a five years' curriculum has not as yet had a fair trial, and cannot, therefore, be criticised with advantage at the present time. The General Medical Council is well aware that it is a very serious matter to urge new, and possibly subversive, recommendations with too frequent recurrence upon the several examining bodies, who are entitled to adopt their own curricula and methods, and who have to make arrangements with both medical schools and teachers in relation to these which may not readily be set aside or terminated. Such disturbances are unfair both to teachers and to students in the course of curricula which have to be planned and arranged often for years in advance of stated examination periods, and should not be rashly or experimentally tampered with. This Committee is of opinion that the rejections in many cases are due to the low standard of the preliminary education and the imperfect mental training which so many students of medicine have received, and to the want of the latter they would attribute the difficulties such candidates experience in the acquisition of scientific knowledge. The General Medical Council has accepted a standard of preliminary general education which seems to be insufficient to train the mind of the average student so as to grasp readily the

difficult problems presented to him in the existing standard of scientific education, a standard which the Council has from time to time raised, while it has left that of the earlier Arts examination untouched. The Examination Committee would remind the Council that efforts have been made by it to remit the obligation of an extended attendance on courses of systematic lectures and to encourage the clinical, practical, and tutorial system of teaching, as far as possible, in every department. Opinions have varied both in and outside the Council amongst medical educationists as to the advisability of leaving the average student more time to himself, untrammelled by the ordeal and discipline of recurrent examinations; but experience so far hardly goes in support of the view that such candidates can safely be left to act wisely and fruitfully for themselves without the direct guidance of their teachers and the discipline of impending examinations, while curricula have to be projected for the majority, and not for the select few, of aspirants for medical qualifications. The suggestion of devolution, or decentralisation, of the preliminary professional examinations which Mr. Teale offers is a very large and serious one. The General Medical Council is powerless to enforce such a system. It appears only too probable that the majority of the boards would refuse to accept the evidence of adequate training and examination presented by many of the schools, and in each case would probably require to inspect and certify the equipment and arrangements provided under such a system before consenting to accept it, and they might even possibly demand to be represented in every class-room, certainly on each of such decentralised boards. The Examination Committee does not regard such a system as beyond the bounds of accomplishment, as a means of escape from present deficiencies, especially if adopted as a preparatory training towards passing an examination, but it is of opinion that it is not feasible in the near future, and that it must encounter serious opposition, and excite both jealousies and very undesirable dispeace amongst the several examining bodies, were it to be recommended by the Medical Council. It appears further to your committee that, with a greater familiarity in class examinations, both written, oral, and practical, a certain nervous apprehension, a want of concentration of thought, and a slovenliness in expression might be obviated, which would pave the way to a greater success in the examinations at the various boards. Your committee would also venture to express the opinion that, as it is not given to everyone to be a good examiner, and as undoubtedly the manner and methods of some of the examiners at the various boards are far from what might be desiderated, it might be well that in selecting an examiner the medical authorities should look for something more than mere professional knowledge. The Examination Committee is not of opinion that the bare fact of an increasing ratio in the number of rejections at all the examining boards is sufficient of itself to condemn the system as at present carried out. It is notorious that most of these rejections occur in the earlier examinations, and that a certain proportion of them result from attempts on the part of students to pass by chance, while conscious that they are improperly prepared. The Examination Committee believes that if all students had to pass a higher preliminary general educational test, and were subjected, as is the case in the largest medical schools, to more strict tutorial discipline, both in their studies and reading, especially before being permitted to enter for the professional examinations, a much higher ratio of passes would result than is now the case. The Examination Committee recognise that, owing to the tendency to specialise in the subjects of medical education and examination, much greater prominence is now given to particular departments included in the course of training for a medical qualification than was formerly the case. This applies not only to the subjects which are essential and form a part of the final professional examination, but to the earlier scientific subjects, some of which are ancillary. In this respect a much greater burthen is undoubtedly imposed on candidates, and subjects, only a general knowledge of which was at one time thought to be necessary, now required to be mastered in much greater detail. There can be little doubt that the increase in the proportion of rejections is in no small measure due to this cause. As regards the practical subjects embraced in the final examination, the Committee do not consider that it is advisable to take exception, but in the more strictly scientific subjects they are of opinion that a re-consideration of the range and standard to be required may and should be made by the medical authorities.

Sir DYCE DUCKWORTH having read the report, moved its adoption, the motion being seconded by Mr. BRYANT.

Mr. TEALE said he was sure that members of the Council would not suppose that he brought up this question hurriedly or without a great deal of thought. It was in a great measure the outcome of twenty years' responsible presence here at this Council. What was his object in the action he took at the last session? He was not so quixotic as to suppose that by a single motion at this Council such great changes could be made in the scheme of the Council as were set forth in his resolution. Neither did he think that it was desirable that this Council should very quickly, even if it were possible, come to changes of this kind. As the report said, we have only recently adopted the five years' course. Certain things had not yet had time to find their level. But he did feel this, that it was essential to awaken opinion, not only of this Council, but also the opinion of examining boards, of examiners, and of teachers. One result of his speech and the wide circulation given to it was that he had received very strong confirmation from a great many quarters of the prevailing opinion, of what the result was that this Council had been working for so carefully and so long in improving medical education and raising the level of the examining boards that were thought not to be up to a proper level. Things were going on beyond the intention of this Council, and getting out of perspective as the result of its action. If they were getting out of perspective it was a question not of adding on, but of undoing to a certain extent, and this was the only body that could undo—it was the only body that could take a perspective view of the whole. What he hoped and wished would be the outcome of the time they had spent was that, during the next one or two or three or more years, before this Council had to reconsider its recommendations, everyone should set their wits to work to see what was the direction in which the evils complained of could be put right. He did not wish or expect any immediate action of this Conncil. If the Council were at once to act, then they would have some tinkering small alterations that made. He believed they would have to make a radical change. The examinations of the big central boards should be fewer in number; he should say three at the outside; and the examinations should be more thoroughly carried out and should have more time spent upon them. The examinations were so hurried, and they had so multiplied the subjects that it was absolutely impossible to do things as they ought to be done. The thing to do was to see what subject they must have central examinations in and to take care that the examinations were done thoroughly; and see what were the ancillary subjects which could be dealt with by teachers under proper supervision from the central bodies. As a member of the Examination Committee he had assented with his seconder, Dr. Pettigrew, to the greater part of the report, but there were two paragraphs which he desired to see omitted. There was another aspect of all this that he had been pointing out. The Council in adding a fifth year of study intended that that should be an additional opportunity for better clinical work. That was clearly the intention of the addition. The idea in the minds of some members of the Council was that at the end of the fourth year the student should have been examined in the book work of medicine, surgery, and possibly midwifery, and that he should have nothing but clinical work and clinical examination afterwards. They already allowed a half of the time to be spent with a general practitioner in order to make up for a deficiency which they were conscious was running through their modern medical education. Students were not brought early enough and intimately enough into actual contact with patients before they were qualified. They saw men turned out in a condition which did not satisfy the practitioners to whom they went as assistants. It was not merely that they did not know, as they could not know at first, the routine of general practice, but their minds had got stiffened into a form in which they did not readily absorb the new aspect of work with which they were brought in contact. The Council granted this additional year with the intention that it should be a clinical year. The idea was that there should be in the first two years study of anatomy, physiology, and it might be chemistry. But they afterwards allowed physics to be shoved in and then they allowed biology to be shoved in, so that whereas formerly two years were thought little enough to give to anatomy and physiology, they brought these new subjects into that period. Some people said there ought to be a six years' curriculum. He was not so sure. Every additional year delayed the time when the ordinary man going into general practice came to deal with human beings, and it was one-half of a medical man's business, one-half of his specialty, to deal with the human side of his patients and to learn all about them. The paragraphs he desired omitted were the one beginning "Opinions have varied" and ending "aspirants for medical qualifications," and one beginning "The Examination Committee is not of opinion that the bare fact" and ending "a much higher ratio of passes would result than is now the case." As regards the former there was a widespread feeling that the student was injured by the constant recurrence of examinations. People appeared to forget that work done for an examination was far from the best work, and for this reason that very few men could work at a subject for examination without the element of anxiety and the element of limitation. Examinations, in fact, were an evil, but they were obliged to have them, and therefore they ought to be as few as possible. He moved the omission of these two paragraphs.

Dr. PETTIGREW, seconding Mr. Teale, said it was only six years since the curriculum was increased, but during that time the number of rejections had risen steadily and to an alarming extent. He considered that the present system was destroying the best teachers, the original teachers, the men who could advance their subject, and it was saddling them with a spurious kind of examiners. Examiners should

not be specialists, and he was glad to find the report dealing with this point. Something more than knowledge of a subject was required in an examiner.

Dr. GAIRDNER said that he had great sympathy with Mr. Teale in this matter, and probably very few of the words which had fallen from him and from Dr. Pettigrew would meet with anything but approval. Somewhere in the fifties he himself issued a little project for the conduct of certain of the examinations at the schools, but it was always met with the remark, "Oh, it would never do to trust the teachers with the examination of their own students." His own feeling in the matter was that the Council was not yet prepared to come to close quarters with this question and put on the books something like definite resolutions with regard to it. He thought the Council might be allowed to simmer over it for another year and then see whether it could make some definite and practical proposals.

Mr. WHEELHOUSE said that, as this might be the last occasion on which he would have an opportunity of speaking upon this subject, he hoped the Council would bear with him. He could not say how thankful he was, before leaving the Council, to find that this subject of the examination of students was going, and had begun, to receive the consideration of the Council. Now he had an experience of forty years as teacher, as examiner, as visitor for this Council, and in a variety of other ways of knowing how examinations were conducted and what had been their results, and the conclusion he had come to was that examinations had been spoilt by the way in which they were now split up and by the way in which they were increased to such an extent that the student was never free from them, never had them off his mind, and was never able to give his mind wholly and undisturbedly to his clinical work. This Council added the fifth year to the curriculum purely in order to give the student an additional year in which to complete his clinical work. The moment that was done fresh examinations were sprung upon him, and biology, physics, and a lot of other things which ought to be parts of a schoolboy's curriculum were imported into the medical curriculum. He would earnestly entreat that these subjects should be required in a preliminary examination, and having been so required in a preliminary examination accepted by this Council should be swept out of the way altogether. He would then earnestly entreat the Council to go back to what was the custom at one time—to say that a man in the first two years of his study should make himself completely master of those subjects upon which all the rest of his work was to be founded—namely, anatomy and physiology. At the end of the two years he would examine the man in these two subjects, and having examined him and found him to possess a thorough knowledge of them he would turn him for two more years into a hospital ward and tell him, "Now you are expected to learn how to do surgery, how to think out your cases and work out your medicine." In fact, he would make these two years a period of thorough study of medicine and surgery. At the end of the two years he would examine him in medicine and surgery just as he had examined him in anatomy and physiology, and he would not allow the examination to be split up. As to the fifth year he would take that to be not only a clinical but a practical clinical year. He would let the man go to a general practitioner and during his time with him put into practice, under the supervision of the practitioner, all he had learned during the two years at the hospital; and he should then learn as well the practice of midwifery. Finally, he would make him pass one full, adequate, and careful examination in all the subjects to show that he was not forgetful of what had gone in the first instance, but that he was prepared to enter upon his own responsibility into the practice of everything that was required for a general practitioner. With this system he thought they would have a chance of turning out a good man.

Mr. BRYANT said it was with great pleasure he rose to say that there was one institution represented at this board which had nearly approached the ideal system Mr. Wheelhouse had so eloquently explained. The Royal College of Surgeons of England had altered its scheme of examinations during the last few years. It had been arranged and the system was working that the early subjects of chemistry, physics, and biology might be acquired before the student entered a medical school. They had also for some time abolished the first year's examination and they gave a thoroughly good examination at the end of the second year in anatomy and physiology, taking the subjects together. The student then went on quietly with his medicine, surgery, and midwifery.

Dr. MACALISTER submitted to Mr. Teale that the two paragraphs he wished omitted were essential to the completeness of the report.

Mr. TEALE said his objection to them was that they denied things which had never been asserted.

Dr. PETTIGREW said that he hoped Mr. Teale would not withdraw his amendment because the paragraphs in question were open to serious objection.

Dr. LEECH believed that the suggestions Mr. Teale had made would obviate the necessity for increasing the number of examinations. He trusted, however, that the Council would not go back upon the work they had done. The increased stringency which their action had brought about had raised the quality of the profession. More men were coming forward, and the requirements for the entrance examinations had not been raised, and that, he thought, was the cause of the greater number of rejections. He very much agreed with what was stated in the report.

Dr. ATTHILL supported the amendment. The paragraphs objected to seemed to endorse the system which was going on at present and which he thought was injurious to the advance of medical science. While he should regret to see anything being done to lower the professional attainments of their students he thought that better results would be attained if there were fewer examinations.

Dr. MCVAIL regarded the last paragraph of the report as a very dangerous one. In stating the opinion that a re-consideration of the range and standard to be required might and should be made by the medical authorities did they propose to re-institute the great battle of the shops? It was for the Council to lay down what they pleased in any of the scientific subjects. That was not desirable. As regards the rest of the report it seemed to him that they were beginning to estimate very well the results of the institution of the five years' course. It happened that the students who came under his tuition were senior students studying clinical medicine, and during the last two or three years the attainments of these students were very much greater than ever before. That was owing largely to their better knowledge of the early professional subjects. He could not vote for the report at all. The whole thing required re-consideration. No doubt there were suggestions made that were of extremely great value. The most important among them was the consideration of how far examinations in schools could be accepted by the examining boards and whether arrangements could be made for having these accepted. That was so important that he should like a far fuller report. He was prepared to move that the report be sent back for re-consideration.

The PRESIDENT objected that there was already an amendment before the Council.

Sir DYCE DUCKWORTH, in replying on the debate, said that the last paragraph in the report to which Dr. McVail had taken exception had been inserted deliberately. Dr. McVail seemed to have forgotten that the General Medical Council had no power to arrange the curricula of the separate examining bodies. It was quite within the right of these bodies that they should re-consider the range and standard they might require in regard to not only early but later subjects. He must point out that if the Council decided to send the report back it would be very difficult for the committee to know what to do. They had already thoroughly thrashed out Mr. Teale's motion, and unless something more came to them, something in the shape of a definite scheme, he felt that the Examination Committee could make nothing more of the matter. Meantime he thought a great deal of good would come from the academic discussion that had taken place. It would show what was in the minds of those who, like himself, had been teachers and examiners and knew something of the wants and ways and requirements of the average student, to whom, rather than the high-class student, the report referred.

A vote was then taken, and the amendment was rejected by 16 to 7.

Dr. BRUCE, for Dr. McVail, thereupon moved as an amendment: "That the report be referred back to the Examination Committee to consider especially how far the system of examination at medical schools by teachers supervised by

outside examiners can be made available to relieve the alleged tension of multiplied examinations before the licensing boards." Dr. Bruce said he would second this amendment.

Mr. BRUDENELL CARTER could not help thinking that this proposal was premature. The time had not quite come for taking any definite or decided step in this matter. He preferred to leave it as it was so that it might fructify in the minds of those who might read the discussions.

Dr. GAIRDNER did not see that the proposal helped them one bit.

Dr. BRUCE pointed out that the proposal put in a mild way what they thought should be done. They did not want the subject to drop.

Sir WALTER FOSTER would support the amendment because he thought the question raised was one that wanted very careful consideration and he thought they should arrive at a better conclusion if they referred it again to the committee. They would not be justified in adopting the report at the present time, for if they did so he thought they would be putting an end to the suggestions of Mr. Teale.

Dr. HERON WATSON said that although he was a member of the Examination Committee he had much pleasure in supporting the amendment. The matter raised by the proposal had not occurred to the committee. They need be in no hurry, and, moreover, the summer rather than the winter session was the time for considering education questions.

Mr. WHEELHOUSE intended to vote for the amendment partly on the ground that it would give the Council full opportunity for consideration, and partly because he wished to leave on the minds of the Council his impression that a great deal of time and money was expended by students that might be saved to them by having certain parts, at least, of their examinations conducted at the medical schools. Why should written examinations not be conducted at local centres?

Dr. PETTIGREW also would vote for the amendment. He desired that the subject should be kept before them, and he would regard it as a calamity, after all that had been said and done, if nothing further ensued.

The amendment was then put to the Council and was declared to be carried. On its being put as a substantive motion

Dr. MACALISTER proposed that the form that the resolution should take was that the report be referred back to the committee for consideration. He did not see that re-consideration should be limited to the one point raised in Dr. McVail's proposal. He moved accordingly.

Sir WILLIAM TURNER formally seconded.

Dr. GLOVER never had admitted that this discussion was academic, and it was not to be so regarded after the admirable speeches which had been made, especially that of Mr. Wheelhouse, which must make them regret his resolution to separate himself from the Council. He thought Sir Dyce Duckworth did justice neither to himself nor his colleagues when he said he could do nothing more. There was in Dr. McVail's proposal a very direct subject for consideration. It was a conviction of his that there should be more examination of the taught by the teachers who instructed them. He could not for a moment agree with the doctrine that a man's teacher was not the best judge of his character and work. It was most important that they should get the judgment of a man's teachers, and the question of getting this was raised by the proposal.

Mr. THOMSON said he would support Dr. MacAlister, for he objected to any particular being referred back for consideration.

Dr. MCVAIL explained that the holding of some part of the examination at the school was the most important point that had been evolved during the discussions of that day and six months, and so important did it seem to him that he thought it ought to be specifically mentioned in the resolution sending the report back to the committee. The committee were not excluded from considering other points, for his proposal was really a general one.

Sir WILLIAM TURNER'S objection to the proposal was that it was a specific re-commitment, while there was more than one point raised for consideration.

On a show of hands 18 voted for Dr. MacAlister's proposal and 4 against. The substantive motion, "That the report be referred back to the Examination Committee for further consideration," was then agreed to.

The Pharmacopœia.

On the motion of the PRESIDENT the following report was adopted:—

"The Pharmacopœia Committee have to report that in addition to the meetings of the committee at the spring and autumn sittings of the Council meetings have been held also in July and in October. Advice and assistance have again been received from Drs. Lauder Brunton and Walter Smith, Referees in Pharmacology, and four of the printed sections of the book have been placed before the Referees in Chemistry, Drs. Thorpe, Tilden, and Emerson Reynolds, and also before Mr. E. M. Holmes, one of the Referees in Botany. Considerable help has also been afforded by the Pharmacopœia Committee of the Pharmaceutical Society. It is estimated that at least three-fourths of the labour of construction has now been accomplished and it is expected that the new Pharmacopœia will be published towards the latter part of 1897. The committee hope that their labours and the assistance afforded by the referees, the editor, and secretary will lead to the production of a volume which will adequately reflect the progress since 1885 of all branches of knowledge affecting this department of medical science."

Students' Registration.

On moving the adoption of a report from the Students' Registration Committee Sir DYCE DUCKWORTH explained that it contained no case that required special notice on the part of the Council.—The report was agreed to.

The Case of Mr. R. B. Anderson.

Dr. GLOVER moved:—

"That the Council memorialise the Government on the case of Mr. R. B. Anderson and the miscarriage of justice in his case, in which the legal rights of persons registered under the Medical Acts have been shown to be dependent on rules of the courts."

He explained that Mr. Anderson was at one time a practitioner at Tobago, Trinidad, and admittedly had been the victim of a wrong legal judgment in the island courts. He had endeavoured to get matters righted before the English High Court, but had been unsuccessful. Mr. Anderson thought it was within the duty and rights of the General Medical Council to help him in a practical and financial way in carrying his case to the House of Lords, where there was reason to hope, Dr. Glover said, he might get the justice which had been denied to him. He (Dr. Glover) did not see his way to admit that the Council would be justified in spending the funds for such a purpose, but he thought they might sympathise with him to the extent of making representations to the Government. If they did that the Government might take some steps to redress the wrongs which Mr. Anderson, whose name was on the Medical Register, had suffered.

Dr. PHILIPSON seconded the motion.

Mr. BRYANT stated that he was deputed by the Committee of the Royal College of Surgeons of England, who had the matter in hand, to do his utmost at the Council for Mr. Anderson's case. But he felt that the case had its weak points. There could be no doubt that Mr. Anderson had been badly treated—in England as well as in Trinidad. Still, there could be no further action in the courts. The law would not allow it. If Mr. Anderson took his case to the House of Lords he would also require to go to the Privy Council asking compensation for the evil he had suffered, and for that a large sum of money was wanted. He had made application to the Royal College of Surgeons of England for money. The College had not come to any decision, but he (Mr. Bryant) thought it was not quite within the scope of the work or duty of either the College or the Council to help on the interests of an individual in such a way as to make themselves partisans against the law of the country. All members of the Council doubtless sympathised very deeply with Mr. Anderson, but he (Mr. Bryant) hoped Mr. Anderson and his friends would be satisfied with an expression of sympathy. They ought not to address the Government unless they felt that their cause was so strong that it would prevail.

Dr. MACALISTER pointed out that Dr. Glover did not indicate any lines on which they should memorialise the Government. It would hardly do to say that they sympathised with the plaintiff and would be glad if the Government would give a judgment in his favour. He hoped they would not agree to the motion.

Sir WILLIAM TURNER said that although this was the first time Mr. Anderson's case had been mentioned on the Council's programme it was by no means the first time that the attention of the Business Committee had been directed to the case. So far back as November last year the committee had received a letter on the subject from Mr. Farrer, solicitor to the Council, in which it was declared that it would be wholly outside the powers and functions of the General Medical Council as a body corporate to enter upon

such a case, and advising that, whatever individual members might desire to do in their private capacity, no deputation on the subject ought to be received. Acting upon that opinion the Business Committee had on more than one occasion sent a letter to Mr. Anderson's advisers intimating that this case was really not a matter that the Council could take up. He had listened to the very clear argument Dr. Glover had put forward, but he had listened in vain for anything that appealed to him as giving them any right to memorialise the Government on such a question. The Acts gave a medical practitioner the right to claim his charges in a court of law; but if he failed to get judgment in his favour, was this Council to go to the Court of Appeal and say that this suitor had been unjustly used and that the Council wished to take part in endeavouring to get him justice? It was obvious that the Council could not use its funds in advocating the claims of practitioners to have their accounts paid and equally impossible was it to memorialise except in the direction of asking the House of Lords to give judgment in Mr. Anderson's favour. While they might feel sympathy it was no part of the duty of the Council in its corporate capacity to interfere in such a matter.

Sir PHILIP SMYLY said he had received a request from the Royal College of Surgeons in Ireland to coöperate with Mr. Bryant.

The motion was then put to the vote, but as only the mover and seconder gave it support it was lost.

The Proposed Deputation to the Local Government Board.

Dr. GLOVER proposed "That the deputation asked for to the Local Government Board on the subject of the imperfect certification of deaths be composed of the President of the Council, Sir Dyce Duckworth, and Mr. Bryant."

The PRESIDENT thought that before moving further in this matter they should wait an answer from the Registrar-General to the communication that was to be addressed to him. If that answer was satisfactory they might not need a deputation. If it was not satisfactory the Council might then go to the Local Government Board. But it seemed to him that to go to the Local Government Board before they got the Registrar-General's reply would only excite jealousy that would do the Council harm.

Dr. GLOVER reminded the President that the Council had passed a resolution to request the President of the Local Government Board to receive a deputation.

Sir WALTER FOSTER suggested that if the President of the Local Government Board consented to receive a deputation the date for it might be such that the members named by Dr. Glover could not attend. It would therefore be better to leave it in the hands of Sir Richard Quain to let all the members of Council know about it, and such of them as might wish to could then attend.

Dr. GLOVER was quite willing to leave the matter so.

The PRESIDENT: Then if we do not get a satisfactory answer from the Registrar-General we will apply to the Local Government Board.

Several Members: No, no.

Sir DYCE DUCKWORTH: The resolution has been carried. The deputation goes.

The PRESIDENT: When?

Sir DYCE DUCKWORTH: When the President of the Local Government Board cares to receive it.

The PRESIDENT: When are we to ask him?

Dr. GLOVER: As soon as the meeting of the Council is over.

The PRESIDENT: Whatever you desire shall be done.

Mr. CARTER suggested that as no time was specified it would be better to wait for the answer of the Registrar-General and then fix the deputation.

It was understood that the President would ask the President of the Local Government Board to receive a deputation, and when he had a reply consenting the President would summon such members of the Council to form the deputation "as he might deem best."

Vacancies on the Executive Committee.

Sir WILLIAM TURNER, on behalf of the Business Committee, informed the Council that on Jan. 1st next two members of the English Branch Council would cease to be members of the Executive Committee, and that the following was the standing order that would be applicable in connexion therewith:—

"Should there occur during the recess any vacancy in the Executive Committee they shall be empowered to fill up such vacancy, except in cases where a summons has been issued for a meeting of the General Council, when the Council itself shall elect."

The Council adjourned.

TUESDAY, DEC. 1ST.

The Council resumed work to-day with Sir RICHARD QUAIN in the chair.

The PRESIDENT announced that the Clerk (Mr. W. J. C. Miller) had been overtaken by illness, and that his duties would be discharged by the Assistant Clerk (Mr. Allen).

Apothecaries' Hall of Dublin.

The Business Committee submitted a draft letter to the President of the Privy Council with reference to the decision of the General Medical Council upon the application for the appointment of examiners in medicine and surgery by the Apothecaries' Hall of Dublin. It received the approval of the Council, Mr. Tichborne and Sir Walter Foster dissenting.

Consideration of Penal Cases.

The following report was received from the Business Committee, viz.:—

"In response to a request by the President and the Council the Business Committee have inquired into a charge, made in an anonymous communication, marked 'Confidential,' but undated and without address, which has been circulated amongst certain members of the Council, that the President has withheld from the General Medical Council in the autumn session of 1895 and the spring of 1896 cases which were reported by the Medical Defence Union in October, 1895, for consideration and inquiry by the Council. The Business Committee have examined the Council's letter-books and the minutes of the Penal Cases Committee. They find that the cases referred to were brought before the Penal Committee on Nov. 13th, 1895, and at a meeting which was adjourned to Nov. 20th, they were again considered by that committee on April 22nd, 1896, Oct. 26th, and Nov. 2nd. At each of these meetings the President was in the chair. Since Nov. 13th, 1895, these cases have been under the careful consideration of the Council's legal advisers and have from time to time been reported on by them. The Business Committee have therefore to report to the Council that the charge made against the President is altogether unfounded and without justification."

Dr. GLOVER said it was not his intention to propose any amendment to this report. He only wished to say that he thought this dispute, which had been conducted at an unnecessarily high temperature upon both sides, was founded upon some misapprehension. He understood the essential charge brought against the President in this document was directed not so much against the President as the Standing Orders of the Council, which enabled the President to dispose of a certain number of cases without submitting them to anybody. He was not blaming the President for that. If there was anybody to be blamed it must be the Penal Cases Committee.

The PRESIDENT said this was not the question. A charge was made against the President which he felt very bitterly indeed. He was conscious of his innocence, and the Business Committee, to their credit, had taken care to go into it, and it was impossible to act otherwise than to clear the President. It was no more fair to blame the Penal Cases Committee than it was to blame the President.

Mr. BRUDENELL CARTER said he thought the name of the author should be mentioned.

The report was then adopted by the Council.

Dental Business.

Mr. BRYANT, on behalf of the Dental Education and Examination Committee, presented reports on the inspection of the examinations for dental diplomas conducted by the Faculty of Physicians and Surgeons of Glasgow and the Royal College of Surgeons of Edinburgh. He explained that these and similar reports with regard to the examinations of the Royal College of Surgeons in Ireland and the Royal College of Surgeons of England were the first of the kind presented to the Council, and with regard to all four bodies he might say that upon the whole the curriculum required by this Council had been fairly followed, and where deviations had occurred they were on the same lines as that curriculum or in advance of it.

The Council adopted the Edinburgh and Glasgow reports after some discussion, but postponed the London and Dublin ones until the May meeting.

Dr. HERON WATSON called attention to certain proposed changes in the regulations of the Royal College of Surgeons of England and asked Mr. Bryant whether that body intended bringing them into operation without consulting this Council.

Mr. BRYANT replied that the regulations would come into operation on Jan. 1st, 1897, and while submitting that it was quite within the competence of the College to take its own

counsel in such a matter, said that the changes were consistent with the principles laid down by this Council.

It was agreed to receive and place upon the minutes a letter on this subject written by the Secretary of the Royal College of Surgeons of Edinburgh and to instruct the Registrar that each year he shall apply in writing to each of the bodies granting dental diplomas or certificates requiring them to furnish to the Council before its May meeting in accordance with the provisions of Section 22 of the Dentists' Act such details of its existing regulations under which it grants a diploma or certificate to practise dentistry and dental surgery as shall enable the Council to determine how far these regulations conform to the existing recommendations of the Council. It was also decided to make a remit to the Dental Education and Examination Committee to consider whether it is desirable in any way to modify the exisiting recommendations of the Council.

Procedure in Penal Cases.

Mr. BRUDENELL CARTER proposed that motions on this subject standing in the names of Dr. Glover, Dr. Tuke, and Dr. MacAlister, and a report on a modification of the standing order relating to penal removals from the Medical Register, be postponed till next session. They had not sufficient time at this sitting to give such important questions the careful consideration that they required.

Dr. HECTOR CAMERON seconded.

Dr. GLOVER thought his proposal was urgent.

The PRESIDENT said that if these motions were to go on he should like to point out the absurdity to which they would lead. Dr. Glover suggested that the Committee should meet monthly and Dr. Tuke that a Scotch and an Irish member should be added to the committee. If the two motions were carried the cost of each month's attendance of the member from Scotland would be £26 5*s.* and of the member from Ireland £25 4*s.* So——

Dr. TUKE: It is hardly right to criticise my proposal before I move it.

The PRESIDENT: That would be the expenditure ten times a year.

Dr. TUKE: I must protest.

Mr. BRUDENELL CARTER'S motion was agreed to, there being only one vote against it.

Disciplinary Powers.

On the motion of Mr. BRYANT it was agreed to receive and enter on the minutes and adopt the following report:—

"The Executive Committee report to the Council that it will continue to give its best attention to the subject of the disciplinary functions of the qualifying authorities and will report to the Council at the May meeting; and the Executive Committee re-appoint the sub-committee, with Sir Dyce Duckworth in the place of Sir Walter Foster."

Retirement of Direct Representatives.

Mr. BRUDENELL CARTER said the Council were terminating this session under circumstances of a very peculiar character, as two of their most esteemed members would certainly not be with them when next they met as a Council. Dr. Glover's services, he hoped, they would retain; but they all knew with regret that Sir Walter Foster and Mr. Wheelhouse had declined to offer themselves for re-election. He thought that in the circumstances it would be fitting for the Council, as it would be agreeable to its individual members, that some expression should be given before they parted of their sense of the great value of the services which these gentlemen had rendered in the Council, of the clearness of mind they had brought to bear on many intricate questions, and, generally speaking, the great importance of the work they had done as members of this body. He proposed that, in view of the retirement of Sir Walter Foster and Mr. Wheelhouse, who were not offering themselves for re-election as direct representatives, the Council desired to express its sense of the loss that would be sustained by the absence of these gentlemen, its high appreciation of the services they had rendered in the past, and its wish that they might enjoy many years of usefulness, prosperity, and happiness.

Mr. TEALE, in seconding this motion, said no one appreciated Mr. Wheelhouse's worth more than he did. In Sir Walter Foster he felt that they were losing not only an able colleague but the one member of the Council who was a Member of Parliament. During their ten years' membership both men had become thoroughly acquainted with the work of the Council, and he did not think the profession could regard their retirement except as a loss.

Sir WILLIAM TURNER said that perhaps more closely than any other member of the Council he had been brought into business relations with Mr. Wheelhouse, and he wished to say that he never met with a man who took a clearer view of the various matters which came before the Business Committee, of which he was chairman, than Mr. Wheelhouse. He never met with a more cautious colleague or a man with whom he had more pleasure in acting. He joined in the expression of great regret that they were to cease to have the valuable services of that member who had held, not merely a position in Parliament, but a position in one of the Governments of the day.

The PRESIDENT assured the Council that he should deeply miss the services of Mr. Wheelhouse. He could always rely on that gentleman for his excellent judgment and the soundness and honesty of his opinions. They should always deplore his loss. As to Sir Walter Foster, he had always been ready to assist the Council with his well-informed advice, and both he and Mr. Wheelhouse would be much missed.

The motion was unanimously carried.

Mr. WHEELHOUSE, who was received with a burst of applause on rising to acknowledge the resolution, explained that an urgent call had compelled Sir Walter Foster to leave the Hall; but he had Sir Walter's authority to speak for him, and he hoped the Council would accept what he said as the acknowledgments of both Sir Walter Foster and himself. When after a twenty years' agitation Parliament granted the boon of direct representation of the profession, Sir Walter Foster, Dr. Glover, and he were elected the first representatives, and on their entrance to the Council they felt that there were great difficulties in their way. They felt that it might possibly be that the direct representation of the profession was something that was not desired by the Council. Nevertheless, as the profession had asked for it and Parliament had granted it they had entered upon their duties, hoping to carry out the wishes of the profession and be of use to the Council. They had endeavoured to do that as perfectly as they could; they had endeavoured to the best of their ability to lay before the Council, as firmly as they could, the views of the profession, whenever these had been expressed. It was with extreme regret that both of them left this Council. If it had been possible they should have liked to continue with their colleagues for a longer time, but after ten years' membership they had both, after careful consideration and thought, determined it was now time they gave way. He, therefore, begged to thank the Council most heartily for the motion and to assure them that he should carry into private life the most profound admiration for this General Medical Council and its work, notwithstanding all that had been said in a variety of places, and particularly at Carlisle. He hoped that whoever might succeed Sir Walter Foster and himself would find as warm a reception as they had experienced.

The business being concluded the Council rose till next May.

Medical News.

DUBLIN MEDICAL SCHOOLS' ANATOMICAL RETURNS.—School of Physic, Trinity College, 185, being 23 less than last year; Schools of Surgery, Royal College of Surgeons, 170, showing a substantial increase of 16; Cecilia-street School of Medicine, 118, being the same as last year.

LITERARY INTELLIGENCE.—The Ideal Publishing Union (112, Fleet-street) has in the press, and will issue in a few days, a pamphlet containing extracts from the temperance writings of the late Sir Benjamin W. Richardson. The pamphlet, to the issue of which we are informed that the author gave his cordial consent, will consist of eighty pages with coloured covers, and a new portrait of the author, and will be issued at the remarkably low charge of 1*d.*—We have received from Mr. Henry Frowde of Amen-corner, E.C., a Thumb "Pilgrim's Progress," whose dimensions are really remarkable when the size of the type is taken into account. The page measures 2 in. by 1½ in., and the type is very clear and well-defined nonpareil. All the quaint little side-headings with which we are so familiar have been inserted, and the result is a very acceptable little gift-book.

LORD KINNAIRD has accepted the position of Trustee to the Dental Hospital of London, Leicester-square. This, together with the fact that Mr. F. A. Bevan is another Trustee, speaks well for the charity's worthiness. It may therefore be concluded that the appeal now being issued for funds for a new hospital is well worthy of the public support. Mr. Bevan solicited it at the recent annual meeting.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—Mr. Hugh P. J. Price, M.R.C.S. Eng., L.S.A., of Narberth, Pembrokeshire, has been the recipient from the members of the Narberth Ambulance Class, in connexion with the St. John Ambulance Association, of a silver teapot for his gratuitous services as lecturer.—At the annual dinner of the Scottish Society in Huddersfield held on St. Andrew's Night, Dr. Kaye, West Riding county medical officer and ex-president of the society was presented with a beautifully illuminated address on vellum bound in morocco.

DIPHTHERIA IN LONDON.—During the four weeks ended with the month of October there were 1229 notified cases of diphtheria in the county of London, all the districts save one having been invaded in the period. The notifications yielded an average of 307 per week, whilst eight sanitary districts had between them no fewer than 634 notifications, nearly one-fourth of these being credited to Camberwell and 85 to Islington. On the other hand, there were eight districts with a total of only 20 notified cases. The deaths in the period were 239 in number, furnishing a weekly average as high as 60, and the per case mortality yielded was 19·4 per cent. of notifications. In the preceding period of similar duration the total of notifications was 1288 and the weekly average 322; all the sanitary districts were invaded, and from 9 of them as many as 725 notifications were received, though in 9 other districts only 27 were forthcoming. The registered deaths were 227 in number, yielding a weekly average of 57, and a per case mortality of 17·6 per cent. of notifications. Thus we see the relationship between the records for the four weeks ended on Oct. 3rd and those ended on Oct. 31st. In the four weeks of November the registered deaths from diphtheria in London were 53, 60, 59, and 48 respectively, an average of 55 per week; the total of the week ending Nov. 21st exceeded by 12 the corrected decennial average for the forty-seventh week of the period 1886-95, whilst that for the following week was only 4 in excess of the like average for the forty-eighth week. In Outer London the deaths from diphtheria in the four weeks ended Oct. 3rd were 46 in number, in the succeeding four weeks they were 54, and in the following four weeks the number was 58, the successive averages having been 11, 13, and 14 per week. In the week ending Nov. 21st the deaths in Outer London numbered 19, of which 6 were of persons belonging to the West Ham registration district and 4 of persons belonging to Edmonton Union. Thus during this week there were 78 deaths from diphtheria in Greater London. Last week the deaths in Outer London fell to 11, of which, however, 8 were of persons belonging to the West Ham registration district. The total for Greater London was thus 59 last week. As showing the general diffusion of fatal diphtheria in London in the week it may be mentioned that each of the following sanitary areas is credited with 3 deaths—namely, Chelsea, St. Marylebone, Bethnal Green, Poplar, Newington, Bermondsey, Camberwell, and Woolwich. There were 788 patients suffering from diphtheria under isolation in London hospitals last Saturday.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, King William-street, Strand, London.
Cycling as a Cause of Heart Disease. By George Herschell, M.D. Lond. 1896. Price 1s.
The Progress of Medical Chemistry, comprising its Application to Physiology, Pathology, and the practice of Medicine. By J. L. W. Thudichum, M.D., F.R.C.P. Lond. 1896. Price 5s.
A Vest-pocket Medical Dictionary. By Albert H. Buck, M.D. 1897.

DEUTICKE, F., Leipzig und Wien.
Die Blennorrhöe der Sexualorgane und ihre Complicationen. Von Dr. E. Finger. 1896.
Die Syphilis und die Venerischen Krankheiten. Von Dr. E. Finger. 1896.

KIMPTON, HENRY, High Holborn, London, W.C.
A Manual of Obstetrics. By W. A. Newman Dorland, A.M., M.D. Illustrated. 1896. Price 12s. net.

LONGMANS, GREEN, AND CO., London.
The Sequels of Disease. By Dyce Duckworth, M.D., LL.D. 1896. Price 10s. 6d.

MACLEHOSE AND SONS, Glasgow.
Medicine and Kindred Arts in the Plays of Shakespeare. By John Moyes. 1896.

MACMILLAN AND CO., London.
The Education of the Central Nervous System. By R. P. Halleck, M.A. Yale. 1896. Price 5s.
The Cambridge Natural History. Edited by S. F. Harmer, M.A., and A. E. Shipley, M.A. Vol. II. 1896. Price 17s. net.

SOCIÉTÉ DES ÉDITIONS SCIENTIFIQUES, 4, Rue Antoine-Dubois, Paris.
De la Nature de l'Épilepsie. Par Dr. F. Hallager. 1897.
Le Langage Écrit: ses Origines, son Développement, et son Mécanisme Intellectuel. Par Dr. P. Keraval. 1897.
Hygiène et Traitement du Diabète. Par Dr. E. Monin. Sixième edition.
Éléments d'Analyse Chimique Médicale appliquée aux Recherches Cliniques. Par Dr. Sonnie-Moret. 1897.
Enquête Médico-psychologique. I., Introduction générale, Émile Zola. Par E. Toulouse. 1896.

THE EDWARDS AND DOCKER COMPANY, Philadelphia.
Ophthalmic Operations as Practised on Animals' Eyes. By C. A. Veasey, A.M., M.D. Illustrated. 1896.

THE REBMAN PUBLISHING COMPANY, Adam-street, Strand, London.
An American Text-book of Physiology. Edited by W. H. Howell, Ph.D., M.D. Illustrated. 1896.

VOSS, LEOPOLD, Hamburg und Leipzig.
Handbuch der Physiologischen Optik. Von H. Helmholtz. Thelle 11, 12, und 13-17 (Schluss des Werkes). 1895 und 1896.

WIGHTMAN AND CO., Regency-street, London, S.W.
To Kumassi with Scott. By George C. Musgrave. Illustrated. 1896.

WILLIAMS AND NORGATE, Henrietta-street, Covent-garden, London.
Compendium der Speciellen Chirurgie. Von Dr. G. de Ruyter und Dr. E. Kirchhoff. 1896. Price 7s. net.
Neuropathologie und Gynaekologie. Von Dr. F. Windscheid. 1896.

A Beautiful World: the Journal of the Society for Checking the Abuse of Public Advertising; No. 6, December, 1898 (J. Bale and Sons, Great Titchfield-street, Oxford-street, London).—Das Konträre Geschlechtsgefühl; von H. Ellis und J. A. Symonds; Deutsche Original-ausgabe besorgt unter Mitwirkung von Dr. Hans Kurella (G. H. Wigand, Leipzig, 1896).—Letts's Office Diary and Almanack for 1897; two sizes. Also Letts's Medical Diary for 1897; three sizes (Published for Letts's Diaries Company by Cassell and Company, London).—Pears' Christmas Annual, 1896; price 1s. (A. and F. Pears, New Oxford-street, London, W.C.).—The Lincoln Stamp Album for Foreign, British, and Colonial Postage Stamps, with Catalogue and Maps; Eleventh Edition (W. S. Lincoln, 2, Holles-street, Oxford-street, London).—Magazines, &c., for December: Strand Magazine, Boys' Own Paper, Girls' Own Paper, Leisure Hour, Sunday at Home, Sunday Hours, Ludgate Magazine, Westminster Review, Contemporary Review, Friendly Greetings, Chapman's Magazine, Myra's Journal, Pall Mall Magazine, Windsor Magazine, Cornhill Magazine, Blackwood's Magazine, and Pearson's Magazine.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ADDISON, CHRISTOPHER, M.D. Lond., F.R.C.S. Eng., has been appointed Arthur Jackson Professor of Anatomy in the Sheffield School of Medicine.

AITKEN, W. B., M.B., Ch.B. Glasg., M.R.C.S., has been appointed Medical Officer for the Destitute Poor and Aborigines at Caltowie, South Australia.

ALLWORTH, FRANK, L.S.A. Lond., has been appointed Medical Officer for the Destitute Poor and Aborigines, at Alwa Plains, South Australia.

BROCKWAY, A. B., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer at Southport, Queensland.

BURKE, SURGEON-MAJOR W. H., B.A., M.B., B.Ch. Dubl., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

CLARKE, F. H., M.B., C.M. Glasg., has been appointed a Physician to the Dumfries and Galloway Royal Infirmary, vice W. Marshall, resigned.

COWAN, FRANK, M.R.C.S., L.R.C.P. Lond., has been appointed an Honorary Surgeon to St. Bartholomew's Hospital, Rochester.

DAVID, WILLIAM WASHINGTON, M.R.C.S., L.S.A., has been appointed, *pro tem.*, Medical Officer of Health for the Rhondda, South Wales.

DICKENS, F. W., M.B., has been appointed a Public Vaccinator at Portarlington, Victoria, Australia.

DOWLING, NORMAN, L.R.C.P. Lond., M.R.C.S., has been appointed Officer of Health for the Shire of Portland, Victoria, Australia.

DUTTON, EDWARD GEORGE, M.R.C.S., L.S.A., has been appointed Medical Officer for the Eastern District of the Plymouth Incorporation.

EADON, S. B., M.D., Ch.M. Aberd., has been appointed a Public Vaccinator at Walwa Creek, Victoria, Australia.

FORRMAN, JOSEPH, L.R.C.P. Edin., M.R.C.S., has been appointed Lecturer on Gynæcology, Sydney University, New South Wales.

GERRARD, PERCY N., M.B., B.Ch. Dubl., has been appointed District Medical Officer in Charge of the Government Hospital, Selangor, Straits Settlements.

GOLDSMITH, F., M.B., Ch.B. Adel., has been appointed Medical Officer for the Destitute Poor and Aborigines, at Woodville, South Australia.

GRAHAM, JAMES, M.D., Ch.M. Edin., has been appointed Lecturer on Midwifery, Sydney University, New South Wales.

GRAY, C., M.B., B.S., has been appointed Honorary Surgeon to the Heathcote Hospital, Victoria, Australia.

GREER, W. JONES, F.R.C.S. Irel., D.P.H. Irel., has been appointed Certifying Factory Surgeon for Newport, Mon., vice T. Limbery, deceased.

GRIFFITHS, J. A. K., M.B. Lond., M.R.C.S., L.R.C.P., has been appointed Junior House Surgeon to the General Infirmary, Macclesfield.

HARVEY, W. A., M.B. Lond., L.R.C.P., M.R.C S., has been appointed a Member of the Court of Medical Examiners for Tasmania.

HAWKES, C. S., L.R.C.P. Lond., M.R.C.S., has been appointed acting Health and Medical Officer at Rockhampton, Queensland.

HEMINGTON, PEGLER L., M.D., M.R.C.S., has been appointed Surgeon to the Metropolitan Throat, Nose, and Ear Hospital, Fitzroy-square, W., vice C. Ormerod, resigned.

HEPWORTH, A. F., L.R.C.P., L.R.C.S. Edin., has been appointed a Public Vaccinator at Steiglitz, Victoria, Australia.

HIGGINS, J., L.R.C.P., L.R.C.S. Edin., has been appointed a Public Vaccinator at Wood's Point, Victoria, Australia.

JELLY, GEORGE AUBREY, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A. Lond., has been appointed Senior House Surgeon to the General Infirmary, Macclesfield.

JONES, SAMUEL CROMWELL, M.D. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Troedyrhiw District by the Merthyr Tydvil Board of Guardians.

KOCH, E. A., M.D., Ch.D. Kiel, has been appointed a Surgeon on the staff of the Queensland Defence Marine Force.

MEIKLE, A. J., M.D. Edin., L.R.C.P., L.R.C.S., has been appointed Medical Officer for the Destitute Poor and Aborigines at Yankalilla, South Australia.

MCANNALLY, A. A., L.R.C.P. Lond., M.R.C.S., has been appointed, *pro tem.*, Medical Officer of the Workhouse Infirmary, Eastry, Kent.

MACDONNELL, J. A., M.D., Ch.M., has been appointed Health Officer for the Port of Westport, New Zealand.

MACFARLANE, A. M , M.B. Melb., has been appointed Medical Officer for the Destitute Poor and Aborigines at Robe, South Australia.

NALL, J. F., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Destitute Poor and Aborigines at Clarendon, Melville, and Warooka, South Australia.

NICHOLLS, G. G., M.B. Melb., has been appointed Medical Officer for the Destitute Poor and Aborigines at Tahenga, South Australia.

PERROTT, CHARLES JOHN, L.R.C.P., L.R.C.S. Irel., has been re-appointed Medical Officer of Health by the Kingswood Urban Council.

PURVES, C. W., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Destitute Poor and Aborigines at Nuriootpa, South Australia.

RIDDELL, ANDREW WILSON, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Physician to the New Brighton Convalescent Home for Women and Children.

RINDER, A. W., L.R.C.P., L.R.C.S., M.R.C.P. Edin , has been appointed Officer of Health for the Shire of Korong (North and Central Ridings), Victoria, Australia. Also appointed a Public Vaccinator at Wedderburn, Victoria.

SALTER, A. E., M.B., Ch.B. Melb., has been appointed Acting Health and Medical Officer at Thursday Island, Queensland.

SEABROOK, L. L., M.B., Ch.B. Adel., has been appointed Medical Officer for the Destitute Poor and Aborigines at Terowie and Wonna (Hundreds), South Australia.

SEQUEIRA, JAMES H., M.D. Lond., M.R.C.P. Lond., F.R.C.S. Eng., has been appointed Medical Registrar to the London Hospital.

SOMERS, J. L. E., L.R.C.S. Irel., has been appointed a Public Vaccinator for Mornington, Victoria, Australia.

STEWART, W. R., M.R.C.S. Eng., has been appointed a Member of the Latrobe (Tasmania) Local Board of Health.

SPROULE, WM., M.D., M.S. Edin., has been appointed Medical Officer and Vaccinator for the District of Teralga, New South Wales.

THOMSON, G. D., L.R.C P. Lond., M.R.C.S., has been appointed Medical Officer of Health by the Ruskington Urban District Council.

THOMSON, J. L., M.B., M.S. Edin., has been appointed Medical Superintendent of the Ballarat Lunatic Asylum, Victoria, Australia.

THYNE, J. A., M.B. Edin., L.R.C.P. Lond., M.R.C.S., has been appointed a Public Vaccinator in South Australia, and also Medical Officer for the Destitute Poor and Aborigines at Mayurra, South Australia.

WALKER, H., L.F.P.S. Glasg., has been appointed a Public Vaccinator for the District of Auckland, New Zealand.

WEBSTER, T., M.R.C.S., L.S.A., has been re-appointed Medical Officer by the Town Council of Bewdley.

WHILLIS, SAMUEL S., M.D., B.S. Durh., has been appointed Assistant Surgeon to the Fleming Memorial Hospital for Sick Children, Newcastle-on-Tyne.

WILLIAMS, R. J. PROBYN, M.D. Durh., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Assistant Instructor in Anæsthetics to the London Hospital.

WOODS, GEORGE, L.K.Q.C.P., L.R.C.S. Irel., has been appointed Medical Officer for the Destitute Poor and Aborigines at Clarendon, South Australia.

WORRALL, RALPH, M.D., Ch.M. Irel., has been appointed Honorary Senior Gynæcological Surgeon to the Sydney Hospital, New South Wales, vice Thomas Chambers.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BOOTLE BOROUGH HOSPITAL.—Ophthalmic Surgeon.

BRIGHTON, HOVE, AND PRESTON DISPENSARY, Queen's-road, Brighton.—House Surgeon to the Northern Branch, unmarried. Salary £140 per annum, with furnished apartments, coals, gas, and attendance.

COUNTY ASYLUM, Whittingham, Lancashire.—Assistant Medical Officer, unmarried. Salary commencing at £100, with prospect of an annual rise of £25 up to £200, with furnished apartments, board, attendance, and washing.

COUNTY LUNATIC ASYLUM, Lancaster.—An acting or temporary Assistant Medical Officer, who may be subsequently appointed for a term of years, unmarried. Salary to commence at the rate of £100 per annum, with board, apartments, attendance, and laundry.

DOVER HOSPITAL.—House Surgeon, unmarried. Salary £100 a year, with board and lodging.

EXETER CITY ASYLUM.—Temporary Assistant Medical Officer. Salary £10 a month with board (no stimulants), lodging, and washing.

GENERAL INFIRMARY AT GLOUCESTER AND THE GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Board, residence, and washing provided.

GORDON HOSPITAL FOR FISTULA, &c., Vauxhall-bridge-road.—Assistant Surgeon.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer at Bowdon, Cheshire. Salary £60 per annum, with board, apartments, and washing.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer for the Convalescent Hospital at Cheadle (unmarried) for twelve months. Salary £150 per annum, with board and residence.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich-road, S.E.—Resident Medical Officer for six months. Salary at the rate of £30 per annum, with board, attendance, and washing.

ROYAL HANTS COUNTY ASYLUM, Winchester.—Honorary Physician and Honorary Surgeon.

ROYAL HANTS COUNTY HOSPITAL, Winchester.—Assistant House Surgeon for six months. Remuneration £10, with board and lodging.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, London, W.—Assistant Resident Medical Officer for six months. Salary at the rate of £50 per annum with furnished apartments, attendance, coals, and light.

ST. SAVIOUR'S UNION, SURREY.—District Medical Officers for the Sixth and Ninth districts. Salaries at the rate of £130 per annum, on certain specified conditions. Applications to the Clerk, Union Office, John-street, West, Blackfriars-road, S.E.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £30 per annum, with board, lodging, and washing.

SUSSEX COUNTY HOSPITAL, BRIGHTON.—Physician and Assistant Physician.

UNIVERSITY OF GLASGOW.—Four Assistant Examiners for Degrees in Medicine. The annual fee in two cases is £30 and in the others £45, the term of office being till Dec. 31st, 1900, in each case.

WESTMINSTER GENERAL DISPENSARY, Gerrard-street, Soho, W.—Resident Medical Officer for one year.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Pathologist, who will also be required to act as Fifth Assistant Medical Officer. Salary £100 per annum, rising £10 a year to £150, with board, &c.

WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—Resident House Surgeon (lady or gentleman). Salary £50 per annum, with board, lodgings on the premises, and washing.

WORCESTER GENERAL INFIRMARY.—Assistant House Surgeon and Dispenser, unmarried, for two years. Salary £70 per annum, with board, residence, and washing.

Births, Marriages, and Deaths.

BIRTHS.

BAKER.—On Nov. 23th at Gledhow-gardens, South Kensington, the wife of C. Ernest Baker, M.B. Cantab., F.R.C.S. Eng., of a daughter.

EVANS.—On Nov. 26th at 13, Taviton-street, Gordon-square, the wife of Willmott Evans, B.S., F.R.C.S., of a son.

HANDFIELD-JONES.—On Nov. 26th, at 35, Cavendish-square, the wife of Montagu Handfield-Jones, M.D. Lond., of a son.

IRWIN.—On Oct. 14th, at Shamrock Lodge, Tientsin, North China, the wife of A. Irwin, F.R.C.S.I., Chinese Imperial Embassy, of a son.

MARRIAGES.

DE SEGUNDO—BASTOW.—On Nov. 21st, at St. Bartholomew's the Great, Smithfield, by the Rev. Sir Borradaile Savory, Bart., rector, assisted by the Rev. W. Hind, Charles Sempill de Segundo, M.B., B.S. Lond., to Gertrude Lucy, third daughter of the late T. W. Bastow of Plymouth.

JONES—PALFREY.—On Nov. 9th, at St. Martin's Church, Birmingham, by the Rev. A. Scott, M.A., Vicar of St. Mary's, Paddington, John Jones, M.D., B.S. Lond., of Clydach, Swansea, to Emily, third daughter of Frederick Jones Palfrey, Esq., of Birmingham.

NEILL—MONRO.—On Nov. 5th, 1896, at Ranaghat, Bengal, Charles Neill, M.A., M.B. Camb., to Margaret Penelope, younger daughter of James Monro, C.B., H.M.'s Bengal Civil Service (retired).

PLOWDEN-MORTON—SMITH.—On Dec. 2nd, at St. Mary's, Willesden, Surgeon-Captain John Plowden-Morton, I.M.S., only son of the late Surgeon-Major Morton of Raleigh, Bideford, to Laura Annie, daughter of Charles Smith, solicitor, Landview House, Ongar, Essex.

DEATHS.

AINSWORTH.—On Nov. 27th, at Wolverton-gardens, Hammersmith, W., William Francis Ainsworth, L.R.C.S., F.S.A., F.R.G.S., in his 90th year.

BENISON.—On the 27th inst., after a short and painful illness, at Holly Bank, King's Heath, William Bedall Benison, surgeon, in his 41st year.

CHILD.—On Dec. 1st, 1896, at Headington Hill, Oxford, Gilbert William Child, M.A., M.D., Exeter College, Oxford, in his 65th year.

HORSFALL.—On Nov. 24th, at Masham, Yorks, Dorothy Vincent, youngest daughter of Henry Horsfall, M.D., aged 18 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.).

TUESDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (2 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY (9th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.).

THURSDAY (10th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.)

FRIDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2 30 P.M.).

SATURDAY (12th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (7th).—ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (40, Leicester-square, W.C.).—8 P.M. Communications:—M. P. V. H. Poinsot: Annealing Gold by Electricity.—Mr. Redman: An Interesting Case of Non-eruption.—Mr. S. Spokes: A Series of Lantern Slides of Museum Specimens.—Mr. H. Baldwin: Cement and Amalgam Fillings. Paper:—Mr. J. F. Colyer: Open Bite (illustrated by lantern slides).

TUESDAY (8th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY.—8.30 P.M. Dr. H. C. Bastian: Adjourned Discussion on a Case of Amnesia of Eighteen Years' Duration, with Necropsy.—Dr. L. G. Guthrie: A Case of Violent Jactitations of Twenty-two Years' Duration, affecting chiefly the Left Arm and Leg; treated by Trephining and Excision of the Arm Centre in the Right Motor Cortex; Result and Remarks.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (17, Bloomsbury square, W.C.).—8 P.M. Mr. D. Howard: A Note on the Estimation of Quinine.—Mr E. M. Holmes: Notes on the Trees yielding Myrrh and Gum Arabic.

WEDNESDAY (9th).—LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—5 P.M. Cases and Specimens:—Dr. P. M'Bride: (1) Specimen of Fatty Tumour from Epiglottis, Second Recurrence in an Elderly Man; (2) Photographs of a Case of Rapid Destruction of the Nose and Face.—Dr. Logan Turner: (1) Papilloma of Septum Nasi, macroscopic and microscopic preparations; (2) Microscopic Preparations of Dr. M'Bride's Two Cases.—Dr. A. Bronner: Pedunculated Growth of Vocal Cord of Tubercular Origin, Larynx otherwise quite Normal.—Mr. A. A. Bowlby: (1) Specimen of Angio-fibroma of the Pharynx, illustrating the Effects of Pressure on the Superior Maxillary Bones; (2) Case of Pharyngeal Tumour.—Dr. J. Horne: Nasal New Growth, together with a microscopic specimen of the same.—Dr. Bond: Female with Thickening of the Hard Palate; (2) Growth in the Pharynx of a Female, case and specimen.—Dr. de Havilland Hall: Case of Chronic Œdema of the Arytænoids.—Dr. P. W. Williams: A Case of Congenital Nasal Stenosis.—Dr. D. Grant and Mr. R. Sabe: Pre-epiglottic Cyst, clinical notes and specimen

HUNTERIAN SOCIETY (London Institution, Finsbury-circus).—8.30 P.M. Clinical Evening. Cases:—Dr. C. M Donnell: Rheumatic Nodules in an Adult.—Dr. J. H. Sequeira: (1) Perforation of Palate in Congenital Syphilis; (2) Deformity of Hand. Other Fellows have also promised cases.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (Limmer's Hotel, Conduit-street, W.).—3 P.M. A Discussion will be opened by Mr. Alfred Haviland on the Thorough Investigation of the Vital Statistics of Health Resorts with the view of comparing them with those of the registration districts in which they are situated, or which immediately surround them. Paper:—Dr. W. Ewart: Note on the Decrease of Malaria and Malarious Affections in London.

SOUTH-WEST LONDON MEDICAL SOCIETY (Stanley's, 235, Lavender-hill).—8.15 P.M. Paper:—Dr. M. Dockrell: Some Common Errors in the Treatment of Skin Diseases. Cases:—Dr. M. Dockrell: (1) Leprosy; (2) Withering Sarcoma; (3) Acne Necrotica; (4) Tuberculosis of the Skin; (5) Raynaud's Disease.

THURSDAY (10th).—HARVEIAN SOCIETY (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Dr. W. F. Cleveland: On Induction, and its Association with the History and Progress of Medicine (Harveian Lecture).

BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Dr. Purcell: Fibro-myoma Removed by Pan-hysterectomy, description of operation.—Dr Elder (Nottingham): Remarks suggested by Four recent Cases of Hysterectomy, also some specimens and photographs.—Mr. Collins (Cardiff): (1) Specimen of Strangulated Ovarian Cyst; (2) Some Notes on Dudley's Operation for Anteflexion.—Dr. Edge (Wolverhampton): Fibro-myomatous Uterus removed by Doyen's Method of Abdominal Pan-hysterectomy.—Dr. Meek (London, Canada): Notes on the Treatment of Advanced Carcinoma of the Cervix Uteri by Curettage and Chloride of Zinc Paste.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-sq., W.).—8.30 P.M. Clinical Meeting. Cases and Specimens:—Mr. G. Lawson: Cystic Tumour of Orbit.—Mr. Holthouse and Mr. Batten: Superficial Choroido-retinitis of Peculiar Form and Doubtful Causation.—Mr. R. D. Batten: Sudden Failure of Vision with Obscuration of Fundi in a healthy Young Man.—Mr. Silcock: (1) Essential Shrinking of the Conjunctiva; (2) Retinal Detachment of Obscure Origin.—Mr. R. Williams: Sarcoma of Orbit.—Mr. Lang: Epithelioma of Cornea and Conjunctiva.—Dr. Bronner: Drawing of a Case of Coloboma Lentis Upwards and Outwards.

FRIDAY (11th).—CLINICAL SOCIETY OF LONDON.—8.30 P.M. Dr. D. Newman: Cases Illustrating increased Vascular Tension of the Kidney as a cause of Hæmaturia and Renal Pain, with or without Albuminuria, Cured by Surgical Treatment.—Mr. A. Parkin: Case of Removal of a Cerebellar Tumour, no return of symptoms for two and a half years.—Dr. H. D. Rolleston and Mr. Marmaduke Sheild: Case of Excision of the Cæcum.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY (8th).—THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-st., W.C.).—2.30 P.M. Dr. Lees: Rheumatism and Heart Disease.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3.30 P.M. Mr. Horsley: Lecture.

WEDNESDAY (9th).—HOSPITAL FOR CONSUMPTION, &c. (Brompton).—4 P.M. Mr. Godlee: Injuries of the Lungs and Pleura.

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. McAdam Eccles: Surgical Cases.

THE SANITARY INSTITUTE (Parkes Museum, Margaret-st., W.).—8 P.M. Mr. S. Rideal: Soils and their Suitability for Sewage Farms, with the *Rôle* of Bacteria in Sewage Disposal.

THURSDAY (10th).—THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Barlow: Clinical Lecture.

FRIDAY (11th).—THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-st., W.C.).—11.15 A.M. Dr. Penrose: Diseases of the Digestive Tract.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3.30 P.M. Mr. Ballance: Lecture.

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

HEALTH RESORTS FOR PHTHISIS.

THE regularity with which the localities recommended by the physicians of each generation for the treatment of phthisical patients are discarded by those of the next in favour of others further from home, even at the sacrifice of the comforts and amenities of civilised life, cannot be fully accounted for either by changes in our views as to the influence of meteorological conditions on the progress of the disease—as those which led to the preference of high altitudes with low humidity, regardless of the cold—nor can it be ascribed to the fickleness of fashion. The new resorts are invariably thinly peopled or recently occupied districts—virgin soil, so to say—as Algiers, Egypt, South Africa, and the Australian Riverina. It is evidently not on climatic considerations alone that Cape Colony gave way to Natal, and this again to the Dutch Republics, but the explanation is rather to be found in their demographic circumstances. Since the bacterial nature of tuberculosis has been recognised the evidence of

the infectivity of the disease—not only through continued personal association of tuberculous individuals with healthy but susceptible persons, but also of the fact that the bacilli may long retain their vitality out of the body—and that fomites, dust, and the very dwellings may become vehicles of contagion. So that a place long frequented by such patients on account of its salubrity becomes in the course of years a hotbed of tuberculous disease. Such a change has, we are assured by a correspondent, overtaken the hitherto popular resort of Mentone. Exceptionally favoured by nature the country people, mostly small peasant proprietors, were healthy and robust, remarkable indeed for their splendid physique, until they abandoned their farms to reap more lucrative harvests as keepers of lodging houses and laundries, and otherwise in the service of the visitors. Now they are sickly and emaciated, coughing and spitting blood, in fact, as generally tuberculous as the invalids who crowd the hotels and pensions. We have often heard surprise expressed as to the reputation in which Madeira was so long held, considering that there is so much consumption among the natives, but with the knowledge we now possess of the etiology of the disease we may well doubt whether it was so at the time when its natural advantages were first recognised. Though it would be impracticable, if not cruel, to attempt the isolation of all sufferers from pulmonary tuberculosis and to treat them as lepers we may well insist on the carrying out of all possible precautions in the way of separate sleeping accommodation, the recognition of the infective character of the sputa, the disinfection of their clothing, bed-linen, and, above all, of the rooms they have occupied. It may be too late to restore old resorts to their pristine state of freedom from the disease, but the duty of combating its further dissemination and of maintaining in new ones the exemption they still enjoy is obviously incumbent on the local authorities and the resident members of the medical profession, who could urge them thereto on motives of self interest no less than of humanity, while consultants at home when sending out patients thither, should impress the same on them, and furnish them with precise printed instructions.

A Sufferer.—We never prescribe or recommend individual practitioners. Our correspondent must consult his own medical man.

Young Country Practitioner.—We should say there is no reason why our correspondent should not do as he suggests.

THE CORSET QUESTION.

"MADAME le docteur Gaches-Sarrante," according to *La Médecine Moderne*, continues with great perseverence to prosecute her campaign against the corset, which she regards as an instrument of torture. The thousand and one theoretical anathemas, launched with a view to the annihilation of this universally employed contrivance, fall powerless before the practical objection that women neither can nor will dispense with corsets of one kind or another. Mme. Gaches-Sarrante admits this, and instead of striving for the unattainable has turned her attention to the production of a bodice which shall at one and the same time satisfy æsthetic requirements and do no injury to the abdominal and thoracic organs. The energetic reformer believes that women as a rule are quite open to conviction, the opposition to a really scientific device in place of the actual deformity being confined to an ignorant set of modistes who know nothing of anatomy and care less. Not long ago she exhibited her ideal corset to the members of a hygienic society by whom it was most highly approved, and already the reformed garment is worn by 126 ladies, many of them belonging to the National Academy of Music, others to the Post Office, while the remainder is made up of several leaders of society and a number of bicyclists. One and all are equally enchanted; they feel thoroughly at their ease, are able to indulge in any sport or exercise, and—most important of all—can claim to be perfectly well dressed. The conversion of 126 ladies is certainly no small feather in Mme. Gaches-Sarrante's cap, and it is to be hoped that the number of her adherents will go on increasing until in self-defence the corset makers are compelled to bow to physiology. That the charge preferred against these people of ignoring nature when shaping their wares is fully founded must surely be apparent to anyone with an eye for proportion who examines the illustrations in a lady's paper. As we write we have some flagrant examples of distortion before us, taken from different sources but all alike in unconformity to nature. We laugh at and pity the poor ignorant Chinese who dwarf the feet of their female children, but the waists depicted by our fashion-mongers are every whit as barbarous. Mme. Gaches-Sarrante's model is said to rest upon the pelvis, moulding the abdomen without pressing upon either the sternum or the false ribs. The bust reposes on, and is supported by it, but there is no constriction above the real waist. So far as it is possible to judge by a description this seems to indicate a rational corset, and as we fully share the designer's conviction regarding the sweet reasonableness of her sex we feel sure it will meet with the success it deserves.

ST. PAUL'S EYE AND EAR HOSPITAL, LIVERPOOL.

WE have received a letter from the treasurer of St. Paul's Eye and Ear Hospital, Liverpool, which will be published next week.

Surgeon.—Concerning the kindness of the suggested action by the employer there can be no doubt. Concerning its legality there might be question, as the girl owes something by law to her remaining parent. Concerning its wisdom we have grave doubts. At any rate, the consent not only of the girl but of her fiancé to the proceeding must be obtained, and there must be no doubt whatever of the infant's parentage. We advise that the matter be talked over first with a solicitor, who would be able to safeguard the employer from any possible ill-results of his philanthropy. The question of a home is one for later consideration upon which we may be able to tender advice.

Dubitans.—The usual dose of thyroid extract for the treatment of myxœdema is from two to five grains. We are not aware of any records of this treatment in goitre. Amongst the leading symptoms of "thyroidism" caused by an overdose are headache, vascular turgescence, tachycardia, and vomiting.

Mr. J. L. Shine.—Without necessarily agreeing with all that was said in the letter of Oct. 31st we do not think that the inference drawn by our correspondent is correct. To take only one instance, Pasteur was both a man eminent for scientific accomplishments and an ardent son of the Church of Rome.

One in a Million.—The free ammonia is certainly excessive. This is the only bad item in the analysis, but from such a comparatively shallow well it is suspicious. We should suggest a bacteriological examination as well.

Fair Play.—If the appointments are advertised the medical man in question is within his legal rights in applying for them. As to the good taste of the application that is another point.

Nautilus.—We recommend our correspondent to apply to Messrs. Thacker and Co., publishers, 87, Newgate-street, stating his requirements.

Scotland.—For the purpose of absolute clearness we should address each brother by his Christian name, with his academic title before it.

Inquirens.—Apply to the Commissioners of Police, Scotland Yard, Whitehall.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 3rd, 1896.

Date	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall	Remarks at 8.30 A.M.
Nov. 27	30·10	E.	38	37	57	45	37	...	Cloudy
,, 28	29·95	S.E.	34	33	46	41	33	...	Cloudy
,, 29	30·19	N.E.	38	35	66	41	34	...	Fine
,, 30	30·36	S.E.	32	Fzn.	53	41	30	...	Foggy
Dec. 1	29·99	S.E.	35	33	57	42	32	0·31	Fine
,, 2	29·67	S.E.	40	38	48	47	34	0·60	Overcast
,, 3	29·54	S.W.	47	46	57	51	40	...	Raining

During the week marked copies of the following newspapers have been received:—*North British Daily Mail, Scotsman, West Briton Advertiser, Driffield Observer, Ormskirk Advertiser, Kentish Observer, Cheltenham Mercury, Bedford Standard, Folkestone Herald, Burton Chronicle, Norwich Mercury, Oxford Times, Wolverhampton Chronicle, Liverpool Daily Post, Llandudno Directory, Kingston News, Times of India, Pioneer Mail, Framlingham News, Kettering Guardian, Waterford Mirror, Bolton Chronicle, Barking Advertiser, Hampstead Express, Newcastle Journal, Portsmouth Times, Carnarvon Herald, Yorkshire Post, Lincolnshire Echo, Builder, Sussex Daily News, Southport Visitor, Slough Observer, Bristol Mercury, Worthing Intelligencer, Leicester Post, Eastern Morning News, Newton Observer, Newcastle Leader, Manchester Courier, Leeds Mercury, Western Mail, Glasgow Herald, Edinburgh Evening Dispatch, Birmingham Gazette, Liverpool Courier, Brighton Gazette, Architect, Retford Herald, Witney Gazette, Man of the World, Sanitary Record, Sheffield and Rotherham Independent, Weekly Free Press and Aberdeen Herald, Local Government Chronicle, Mining Journal, Australasian Medical Gazette, Hertfordshire Mercury, Reading Mercury, City Press, Bath Chronicle, Bradford Observer, Surrey Advertiser, Lincoln Gazette, Local Government Journal, Royal Cornwall Gazette, Southern Daily Mail, Worthing Gazette, Sunday Telegraph, West Middlesex Herald, Citizen (Gloucester), Jackson's Oxford Journal, &c. &c.*

Communications, Letters, &c., have been received from—

A.—Messrs. R. Anderson and Co., Lond.; An Earnest Enquirer, Lee-on-the-Solent; Messrs. Arnold and Sons, Lond.; Aberdeen Medico-Chirurgical Society, Sec. of; *Archives de Physiologie*, Paris, Editor of; Assistant, Lond.

B.—Mr. G. H. Broadbent, Manchester; Dr. G. S. Brock, Rome; Messrs. Vincent Brooks, Day, and Son, Lond.; Messrs. Burgoyne, Burbidges, and Co., Lond.; Mr. J. H. Busteed, Romford; Mr. C. Butler, Retford; Dr. B. Bramwell, Edin; Dr. J. S. Bolton, Rainhill, near Liverpool; Mr. C. S. Bowker, Newport, Mon.; Dr. A. O. Bobardt, Cook Town, Queensland; Ballardvale Lithia Spring Water Co., Lawrence, Mass., U.S.A., Manager of; Bootle Borough Hosp., Clerk of.

C.—Dr. F. Carey, Guernsey; Mr. G. Cowell, Lond.; Clerical, Medical, and General Life Assurance Society, Lond., Actuary of; Messrs. G. Carré and Naud, Paris; Messrs. Cassell and Co., Lond.; Caput, Lond.; C. E. D., Lond.; His Excellency Crookshank Pasha, Cairo, Egypt; Dr. C. Crawford, Hamilton, N.B.; Messrs. J. Clarke and Co., Belfast; Messrs. S. B. Clarke and Sons, Lond.; Mr. F. M. Cook, New York; Mr. F. W. Count, East Dereham; Mr. G. L. Cheatle, Lond.; Mr. C. Carrington, Paris.

D.—Dr. D. E. Darbyshire, Greenwich; Dr. E. Diver, Lond.; Dr. T. M. Dolan, Halifax; Department of Health, Chicago, Commissioner of; Dr. A. T. Davies, Lond.; Devonport Medical League, Tasmania; Messrs. J. and W. Dixon, Markinch; Surg.-Maj. A. Duncan, Dehra Doon, N.W.P.; Dr. S. Delépine, Manchester; Mr. T. Dixon, Lond.; Dover Hosp., Sec. of; Dr. J. H. Dauber, Lond.

E.—Exeter City Asylum, Supt. of; Mr. T. S. Ellis, Gloucester.

F.—Dr. Fraser, Southsea.

G.—Dr. E. Goodall, Carmarthen; Messrs. Goodrich, Hazel and Co., Methwold.

H.—Mr. Charles Higgens, Lond.; Mr. W. Mayhowe Heller, Lond.; Mr. L. Harris-Liston, Stafford; Mr. R. Hutchison, Lond.; Mr. T. Horsfall, Bedale; Dr. J. Hinshelwood, Glasg.; Mr. J. Hardie, Manchester; Hospital Reform Assn., Cardiff, Hon. Sec. of; Surg.-Capt. P. Hehir, Hyderabad, India; Dr. A. W. Hare, Darlington; Mr. J. Heywood, Manchester; Mr. F. J. Hatch, New York, U.S.A.; Mr. W. S. Handley, Lond.; Mr. W. L. Hubbard, Rugeley.

J.—Dr. W. W. Jones, Lond.; Dr. W. Johnson, Montreal.

K.—Messrs. Keen, Robinson, and Co., Lond.; Mr. C. B. Keetley, Lond.

L.—Mr. H. Lupton, Stratford-on-Avon; Linnean Society, Elizabeth Bay, N.S.W., Sec. of; Liq. Carnis Co., Aston Clinton; L. S., Lond.; Mr. A. Loisette, Lond.; Mr. E. J. Line, Isleworth; L.D.S. Eng., Plymouth; Mr. T. Laffan, Cashel; London County Council, Public Control Department.; Linotype Co., Lond., Sec. of; Lancaster County Asylum, Med. Supt. of; Messrs. Le Brasseur and Oakley, Lond.

M.—Mr. F. Hone Moore, Littleport, Ely; Middlesex Hosp., Lond., Sec.-Supt. of; Maltine Manufacturing Co., Lond.; Mr. H. Marmion, Lond.; Manchester Medico-Ethical Assn., Hon. Sec. of; Messrs. F. L. May and Co., Lond.; Manchester Hosp. for Consumption, Sec. of; Messrs. Maple and Co., Lond., Advertising Manager of; Dr. B. B. Morton, Bradford; Messrs. Mayer and Meltzer, Lond.; Mr. E. Mogg, Bridgewater; Mr. J. McMurtrie, Glasg.; M.R.C.S., London; Dr. D. MacGregor, Wellington, N.Z.; M. O. H., Lond.

N.—Mr. C. H. Newby, Southsea; National Health Society, Lond., Sec. of; Mr. W. S. Nockolds, Cowes; Dr. J. Niven, Manchester; Mr. C. H. Newby, Southsea.

O.—Messrs. Oppenheimer, Son, and Co., Lond.; One in a Million, Biggleswade.

P.—Dr. G. N. Pitt, Lond.; Mr. Y. J. Pentland, Edin.; Messrs. Potter and Sacker, Lond.; Mr. H. Price, Narberth; Dr. J. F. Porter, Helmsley; Plymouth Medical Society, Plymouth, Hon. Sec. of.

R.—Dr. Leonard Raby, Devizes; Mr. J. D. Rhodes, Plumstead; Royal Hants County Hosp., Winchester, Sec. of; Dr. W. B. Ransom, Nottingham; Messrs. Russells, Liverpool; Mr. R. O. W. Roberts, Oswestry; Royal Commission on Tuberculosis, Lond., Sec. of.

S.—Dr. E. Sutcliff, Gt. Torrington, North Devon; Messrs. G. Street and Co., Lond.; Mr. A. Stenhouse, Glasg.; Messrs. K. R. Schramm and Co., Lond.; Dr. E. W. Sumpter, Cley-next-Sea; Dr. J. F. J. Sykes, Lond.; Mr. W. H. Smith, Harringay Park; Society of Anæsthetists, Lond., Hon. Sec. of; Dr. J. B. Spence, Burntwood; Sussex County Hosp., Sec. of; Sell's Advertising Agency, Lond., Managing Director of.

T.—Dr. F. R. P. Taylor, Woodford Bridge; Mr. G. C. Taylor, Stafford; Prof. R. Thoma, Magdeburg, Saxony; Mrs. S. Theobald, Leicester.

U.—United Alkali Co., Widnes.

V.—Dr. G. R. Vicars, Ripon; Mr. C. Vertannes, Lond.

W.—Mr. J. Willings, Lond.; Dr. William Woods, Liverpool; Mr. R. W. Wilbank, Daventry; W., Manchester; W. E. T., Lond.; West End Pathological Laboratory, Lond., Sec. of; Messrs. Warren and Co., Newcastle-on-Tyne; Mr. C. Williams, Norwich; Mr. H. C. Wilkins, Coventry; Wolverhampton Eye Infirmary, Sec. of; Mrs. Whitehead, Woolston; Mrs. Warrillon, Lond.; West Riding Asylum, Wadsley, Med. Supt. of; Wirral Children's Hosp., Birkenhead, Hon. Sec. of; Mr. Z. M. Walker, Mentone, France.

X.—X. Y. Z., Lond.

Z.—Zenana Medical College, Lond., Hon. Sec. of.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. J. Adams, West Malling; A. B. C., Morley; A. B. C., Lond.; A., Lond.

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